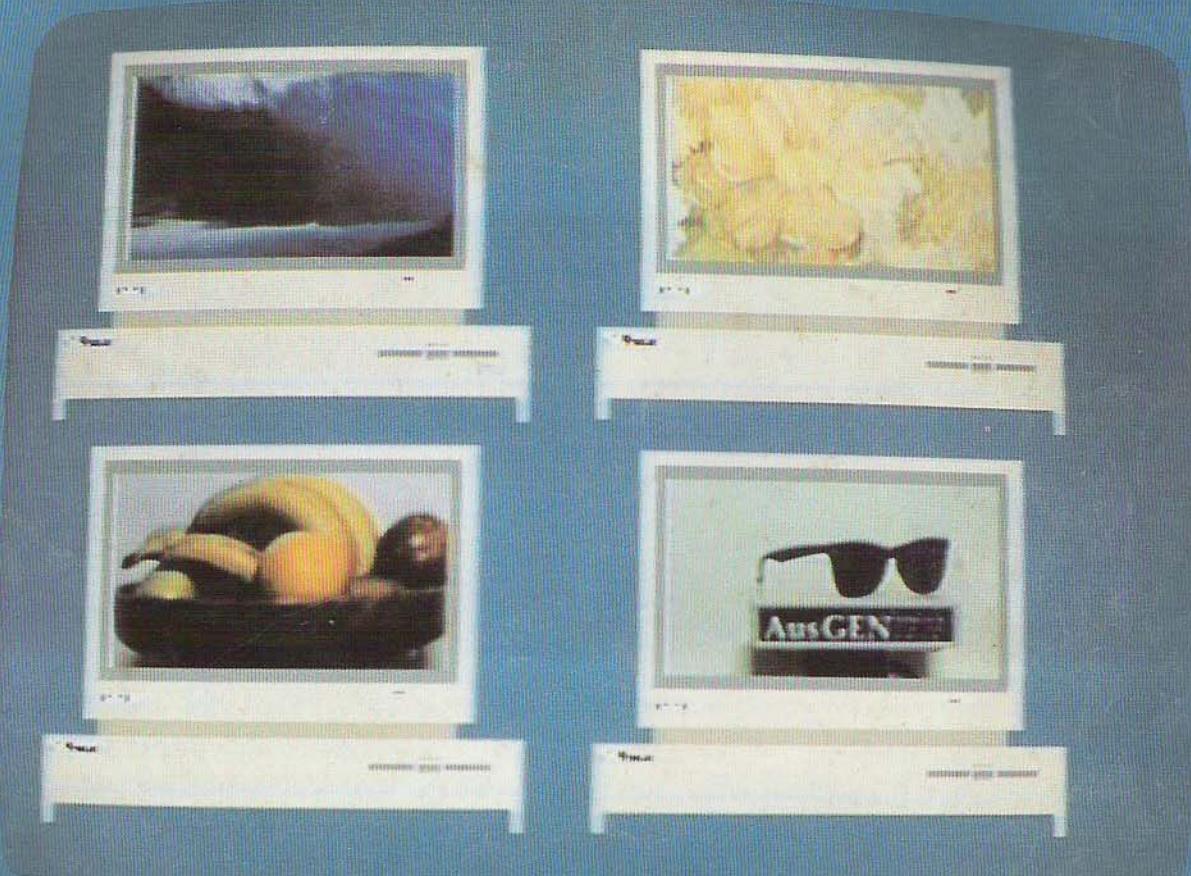


The Australian COMMODORE and AMIGA REVIEW

Desk top Video opens new doors



Amiga

- Reviews of Hybris, Battle Chess, Bionic Commando, Flippit
- C Tutorial
- Using Amiga Basic
- Photon Video Cell Animator
- Fantavision

C 64/128

- Reviews of Typhoon, Clubhouse Sports
- Zetec Gold Interface
- Rounding in Basic
- Designing your own Operating System
- Basic Tutorial
- Family Roots

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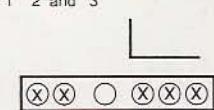
②

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① & ③

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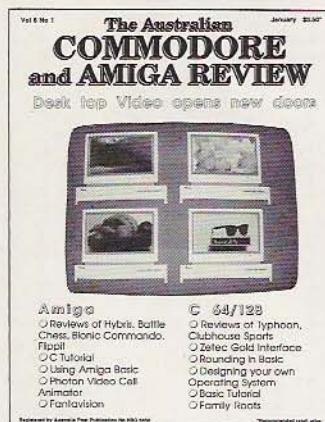
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The Australian **COMMODORE** and Amiga Review

VOL. 6 NO. 1

January 1989

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The Generation Gap !!!

Dear Parents,

When you and I went to school we did not have to use computers and we had no way of revision or preschool study except by using boring, boring school books.

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There is a great range of educational software (not only from Pactronics) which will do two things at least for your kids:

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2. Get them used to using computers (their future may well depend on this ability).

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LEARN TO ADD
LEARN THE ALPHABET
TOOLS FOR TOTS
LETTER GO ROUND
GRANDMAS HOUSE

Ages 7 to 12

ADDITIONS/SUBTRACTIONS
GEOMETRY
DECIMALS
MATHS DRILLS
FRACTIONS
NUMBER ROUND UP
MULTIP/DIVISION
PUNCTUATION
MATHS MANIA
VERBS

Ages 10 to 16

ALGEBRA
MATHS WORD PROBLEMS
DECIMALS/FRACTIONS/
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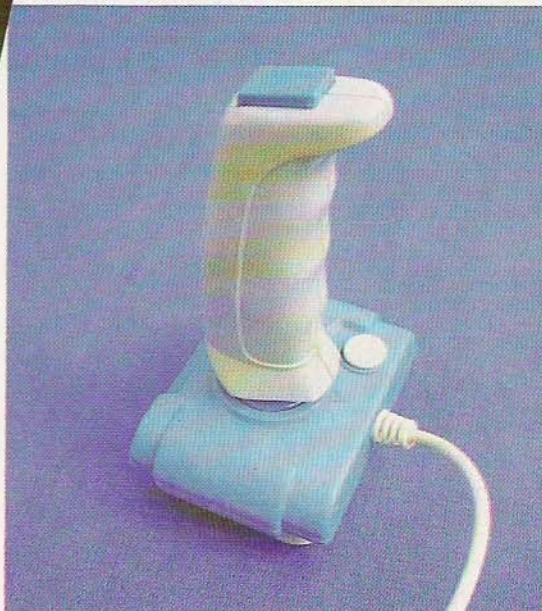
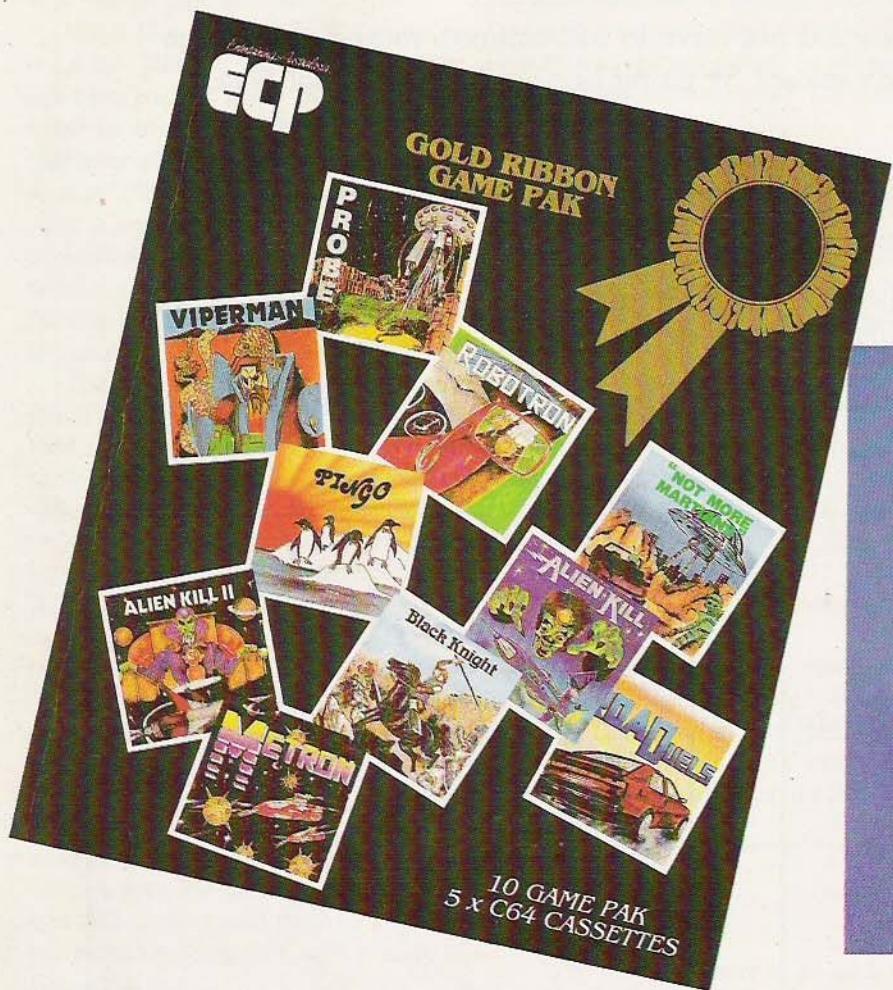
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C64
DISK + CASSETTE

Editorial

In our *Amiga Annual 1989*, shamelessly plugged in the *Sydney Morning Herald* by our publisher, Gareth Powell, we looked at the main stream areas of Amiga computing. We left out one major area. It's getting bigger by the day as more and more programs and hardware devices turn up.

I refer to Desktop Video. C64ers will find their machine examined from this angle next month in the second part of our look at this rapidly expanding area. But first, we must examine the new king of the video arena. Amiga is making headway like no other graphics machine. This month we look at what Desktop Video is, what you need, and review a couple of the many packages around to get into it. Video Recorders and Cameras will covered in part II along with any packages we missed out this month.

This issue, like December, we hope both Amiga and C64/128 owners will find a pleasing mixture of articles. For the most part, criticism has been constructive. We've listened, and taken note. Some people questioned our changing to a mixed format.

In the past there have been subjects that apply to both Amiga and C64 owners that were only covered in one or the other section. If you didn't read the entire magazine, you might miss out. Areas such as Communications, Printers, Modems and even software have large amounts of crossover between both machines. It's only logical to speak about both in the same sentence - in the same part of the magazine.

Another factor in determining our change was the large number of owners either upgrading, or still using both machines. I for one still power up my C64 for a look at the latest demo's, to play new games and do a little programming. My Amiga gets well used, as does my Commodore PC. The *Commodore Review* is for Commodore computers - of whatever make or model.

Andrew Farrell



The Australian COMMODORE and AMIGA Review

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If you don't want to cut this out
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c64

ers . . .

SketchPAD 128

C128 owners can now make further use of the 128's extra high resolution mode (640 x 200) found using the 80 column chip. A new program from Free Spirit software provides makes it all possible. This program includes lines, boxes, rays, circles and arcs. It is 100% menu driven, can handle 3D solids, enlarge the screen, scroll it, and produce slideshows.

Compatibility with BASIC 8.0 is maintained, 64K of video RAM is supported, and *Print Shop* graphics may be used directly. Sounds great - full review next month. Limited quantities of this program will be imported soon. For further details contact Prime Artifax on (02) 817-0011.

Solutions Limited, known for titles such as the Icon Factory, Screen F/X, Billboard Maker and Photo Finish are also now publishing their range through Free Spirit Software. We should see supplies of these programs soon.

Suite 64 - GEOS problems

If you have Disk Magazine No 12 of Suite 64, you may be having problems with the GEOS upgrade. If so, please call our office for a separate GEOS upgrade disk. It appears there was a problem with the upgrade supplied on the B side. Call (02) 817-0011 for details.

WARP Speed 25

Whilst the Mach IV cartridge seems to have died a miserable death, with massive problems on all the cartridges imported to work on the C128 or C64, a new entry has surfaced with similar capabilities. Providing a 10 x speed-up in LOADs, SAVEs and various other file options, as well as full operation in both C64 or C128 mode on all drives includ-

ing the 1581, the Warp Speed cartridge should prove very popular. A sector editor and machine code monitor are also included. RRP \$59.95. Distributed by YPA. (02) 899-2348.

GEOS 2.0

An enhanced version of GEOS has hit our shelves. It includes *geoSpell* and *geoWrite Workshop*, as well as a redesigned deskTop and operating system. Improvements have been made to *geoPaint*, *geoMerge*, *Text Grabber* and there's a self running demonstration of other GEOS programs.

According to Berkeley Softworks, the new version incorporates Macintosh-like features and ease of use, and the results of two years refinement, extensive user research, and customer service feedback. An upgrade path is expected to be announced for Australian users soon. Currently, stores are stocking the new version for around \$119.

SAVE @: Reminder!

New users watch out! A bug that has long been contested by Commodore users the world over as to its exact origins can be averted by the addition of a simple character.

When using the SAVE and REPLACE option such as SAVE "@:filename",⁸ a bug may creep in that tends to put your drive in a real mess. For safe keeping its often best to SCRATCH and then SAVE. However, some users are now content with a cheaper version.

By using SAVE "@0:filename",⁸ the bug, it is reported, can be averted. Commodore agree, and have attested to this method. We're still sceptical.

C128 Super Doodler.

The Technological Highbreed Inte-

grated System (*THIS*), Version 2 has been released. Although we are yet to see this program in Australia, keen artists will want to know more about this program. *THIS* provides a drawing resolution of 960 x 536 dots. Drawings may be produced to a scale within 1/64 of an inch and printouts can be from 2 x 2 to 480 x 321 inches.

Other features include real-time object rotation and move, cut, copy, paste and zoom, a library of over 100 electronic symbols for clipart and some 700 type sizes and ten font styles.

Suggested applications include architectural drawings, flow charts, pattern designs in carpentry, clothing, stained glass artwork and graphs.

The package arrives complete with a 1351 mouse and DT-170 light pen drivers. *THIS* is available only directly from the USA at this time through Micro Aided Designs, P.O. Box 1982, Placentia, CA 92670 for \$63.99 (U.S.).

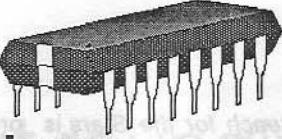
Virus on C64?

We are often asked if the C64 is prone to any of the various virus strains that have become problematic on the Amiga and MS-DOS type computers. In short the answer is no. However, there have been some reports of worm type programs or trojan horses which when run rattle your disk drive to pieces or format the disk currently in your disk drive under the pretense of carrying out some other function. We have yet to see any such programs and would be interested if anyone can provide us with a sample.

GEOS Wordprocessor

Spinnaker has released a GEOS compatible wordprocessor called *The Better-working Word Publisher*. The company claims their package can handle text entry five times faster than other GEOS wordprocessors. A 100,000 word spell checker is included. Up to nine fonts and six type styles may be included on the same page. Full review in next issue.

RAM Rumbles



AMI-Expo for all Commodore owners

Plans are in the pipeline for a full scale exhibition for Commodore users - with a difference. Like the highly successful Ami-Expo in the USA, the Australian version will be orientated around various seminars and training courses to be held at the same venue. Pre-registration will enable visitors to the show to attend a number of seminars during each day.

A door charge of five dollars (family and child concessions will apply) will enable the costs to be covered partly by the public.

As a result, stand prices will be low, and exhibitors will not be limited to large corporate organisations, or retailers.

AMI-Expo will also cater for the dozens of cottage industry businesses producing Amiga and C64 computer software and peripherals, as well as user groups and magazines. You can expect to see displays of all aspects of the Amiga and C64 as well as demonstrations of new products, game competitions and public domain software sales.

It is expected the State Sports Centre at Homebush, in Sydney will be the venue. Dates for the event are MAY 18-21 (Thursday until Sunday). So be sure to keep at least one day free. Ami-Expo will open late at least one evening.

Courses and seminars for both the Amiga and C64 will include introduction to computers in general, use and general operation as well as specific areas such as graphics, music and low-level programming.

Cost for attending these courses, to be held by experienced users and teachers, will include entry to the exhibition.

Single Day - Exhibition Only
plus Key Address \$5.00

2 Days/Two Seminars	\$15.00
3 Days/Four Seminars	\$20.00
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Spaces for attending the various courses and seminars offered will be limited. To ensure your position, please pre-register as soon as possible. Payments can be accepted by Bankcard, Mastercard, VISA, money order or cheque. For bookings, and further information regarding available courses, please call (02) 816 4714 or Write to AMI-EXPO, P.O Box 175, Gladesville, 2111.

Multi-Coin Amusements Aussie joystick

It's rare to find Australian companies involved in expensive manufacturing processes and entering an already crowded market.

However, that is just what Multicoin have done with the release of a new super tough joystick called the StarCursor. Unlike other more flimsy devices, this one is built to last and comes with a three year guarantee. Retail price on the beast is \$49.95.

Surprisingly enough, some chain stores are refusing to carry the stick. Despite the fact it's an all Australian product, they don't like the idea that customers won't be back for a replacement in a few months. Dick Smiths gobbed up initial supplies, however you should find other good computer dealers carrying the Starcursor now. For details call Multicoin Amusements on (075) 37-5711.

High Failure Rates?

A management consultant group in NY, USA have discovered that 69.5 percent of personal computers fail in some way over a 12 month period. They also found that each system needed an average of 1.47 repairs per year, or nearly three repairs for every two units serviced. I wonder which brand they surveyed?

Update

Well, Christmas has come and gone and here I am able to wish you a Happy New Year! Heavens, it is already 1989, only 11 years to go!

I hope you had a lot of fun over Christmas playing with the great range of Pactronics games, but if by any chance you did not play FLIPPIT, then you really missed out on some of the Christmas cheer, and in fact, if you don't rush out and get a FLIPPIT for yourself now, whether it be on 64, Amiga, or PC, then you've obviously flipped! I think I mentioned last time that this programme is Australian made which is why it is so much cheaper than most of the other games around although, in our opinion, it is a lot better than a lot of the other games around, and I am sure that if you support this new company by buying FLIPPIT you will encourage them to write a lot more programmes.

On a more serious note, now that it is past the silly season, I should talk to you about PROFESSIONAL DATASTORE for the Amiga. This is undoubtedly THE definitive database for the Amiga. To make sure you only ever buy one database for your Amiga, make a point of asking to look at the programme in your local retailer. There are too many features for me to go through here.

With the new school year a few weeks away, let me remind you, PARENTS, that every child is going to have to use computers at school and you can give them a head start by getting them educational programmes from the great Pactronics range. We have programmes for three year olds and upwards covering a multitude of subjects. If you don't already have the list of our educational software, please ring us on 407 0261 immediately and we will send one out.

HNWTWA

Advertisement

Notepad

Notepad

Australian animation company wins Aegis awards

Emmanuel Stefanou & Associates have won second place in the Aegis Animation Contest. Congratulations guys, more proof that just because we're downunder doesn't mean we're out. E&S submitted a copy of their demo tape consisting of several excellent animations produced using *VideoScape 3D*, along with a number of well presented stills, company logo's and the like. It was very unusual to see the award go to an overseas company. Copies of the tape entered are available. Call (062) 950-478 for information.

Desktop Publishing Award for Amiga user

On the subject of awards, Mark Evans Associates collected second placing in the desktop publishing awards.

Mark Evans used an Amiga 1000 with *City Desk* to produce a 16 page, two colour publication based at South Dubbo. The judges were impressed with the content and format of the publication. The journal was lined up against Macintosh-produced page layout - the more accepted form of desktop publishing.

If you're in Dubbo looking for DTP facilities call (068) 82-0802.

Anti-Virus PAK II

Hundreds of people have responded to our Anti-Virus PAK offer. Here's a few hints on use.

The most powerful detector/remover is the SYSTEM Z Detector. Select it from the main pull-down menu. Insert your Workbench disk once the program is LOADED. Write-enable the disk. Then choose the Write Bootblock option. System Z will then write a special program to the boot block. This will protect you against future VIRUS strains, and notify you of any virus infected disks you attempt to reboot from.

Master CLI

If you're still stuck for a DIR or aren't sure how to INFO when you're in the CLI, then you need *Master CLI*.

Graphic Expressions have produced a vry useful product for beginners. It's an interactive tutor and memory resident assistant, requiring only 512K. Twentyone of the most commonly used commands are available at the click of a mouse. Full review next month. For further information contact Computermate on (02) 457-8118.

Strategic Studies Group

Reach for the Stars has been a big hit overseas. The Australian producers and programmers have decided it's time to give this and other programs like it a high profile lo-

cally. *Reach for the Stars* is now available for the Amiga. The game enables up to four players to colonise space, a build their own empires. Watch Adventurer's Realm for more details. Call (02) 819-7199 for details.

Amiga operators course

Unlike many other Amiga Guru's, Geza Dujmovich believes that end users shouldn't waste their time learning to program. Rather they should concentrate on becoming proficient users of the Amiga. Thus Geza has been offering a training course in conjunction with White's Computers. The course covers basic concepts and use of the Workbench, to necessary CLI knowledge and useful utility programs. For further details call (02) 634-6636

order office for \$6 a disk. A listing of disks from one to 146 appears in the Annual. Additions to this list will appear at the end of Notepad from time to time. For details and ordering call (02) 817-0011.

Amiga Transactor

Issue two of this fine magazine is out. Despite problems at upper management level back in Canada, the show is still on the road. For C and Assembly Language programmer, this is the publication to buy. It's not for beginners. There's lots of source code, and very technical type material. A hefty well written magazine.

For details and a copy of the latest edition (complete with Australian news section and some local ad support), call (062) 88 3584 7-9pm.

Workbench 1.3

We called Commodore just before press time, and the official answer on the whereabouts of Workbench 1.3 was: "it arrived in customs today." So, the wait continues.

Needless to say, delivery was still expected before the end of the year - so you should be able to purchase a copy from your local dealer about now. A very worthwhile upgrade.

Amiga-Live! II

Issue two of our Amiga magazine on a disk is out. Wonder what we really thought of *Outrun*? Check out issue two.

There's also a guide on working Workbench, game hints, general help, product reviews programs and more. Two disks in all along with printed documentation. Don't forget *Amiga-Live!* is bimonthly, not monthly as the ads say! A slight glitch there.

Anyhow, you can order the latest issue for \$24.95 from Prime Artifax on (02) 817-0011. A sampler will be available by mid December for just \$5 to give you a rough idea of what *Amiga-Live!* is all about. Pages from issue one and two along with snapshots of program screens will be included in a slide show.



Notepad

Special Report: Australian Amiga User Association Open Day

by Geoff Lambert

The 1988 Australian Amiga User Association Open Day was held at the end of November at the Museum of Fire, Penrith, NSW. The Australian Amiga User Association (AAUA) is the largest Amiga user group in NSW and the Open Day a mix of commercial and non-commercial displays of Amiga products.

The ten commercial exhibitors and six non-commercial displays provided a look at several of the latest developments in Amiga hardware and software. While it might not have the glamour of the World of Commodore, it attracted almost 600 interested people to the one day event, even in pouring rain. It's informality also attracted several small developers otherwise unseen in the Amiga world. For people seeking to learn as well as look, it provided an excellent opportunity.

New products on display were the A2500-AT, the AT bridgeboard upgrade kit, a new debtors accounts program and the latest releases of games for Christmas.

So, who was there....

Pittwater Distributors:

Displayed the *Electronic Cashbook* for the Amiga and gave a first public display of the new *Electronic Debtors*.

Together, the two programs provide an excellent small business accounting system for the Amiga. Both are designed to run in just 512K of memory with a single floppy drive. More information on (02) 407 0211.

Advent Solutions:

Amiga 500 owners with a mess of cables at the rear will be glad to know there is now a neat solution. A perspex monitor stand designed to clip on to the back of the Amiga 500 keeps both cables and the transformer neatly out of the way. A simple product but one that attracted a lot of interest on the day. Phone Mark Vine on (02) 605 9938 for more details.

AusGEN Genlocks:

If you've wanted to try video editing but couldn't afford the professional genlocks of companies like Neriki, then think about one of these. The AusGEN genlock has two models, the simpler one at only \$400. For those of you who are not sure what a genlock does, it takes a video signal and overlays an Amiga display, generating the result as another video signal.

This is most effective for video titling but a genlock does not allow you to save each frame. For this you need a frame grabber. Oh well... More details from Dave Thompson on (02) 639 6686. (Also see the review in this issue of ACAR - Ed.)

Geza Dumovich:

Classes which introduce you to MS-DOS machines are common, but not so for the Amiga. Geza runs classes introducing people to the Amiga. Each class is small and focuses on using all the workbench facilities and the simple but necessary CLI commands. Contact through White's Com-

puters below.

White's Computers:

Supply Amiga hard drives, memory and computer accessories including all the popular magazines. Of special interest was a memory board suitable for both the Amiga 1000 and 2000. The A1000 board can hold up to four megabytes, is true auto-config, and when removed from its case will slot neatly into the A2000. A nice way to take the memory with you if you upgrade. Phone Alan or Chris White on (02) 634 6636.

Artscape:

Professional artists using the Amiga as their canvas. Artscape not only sell disks of quality artwork (including the new Hot disk), but also run classes on using the leading Amiga drawing and animation programs. Even non artists can draw pictures on the Amiga once they know the tricks. Phone number is (02) 977 1829.

Diskworks and Expansion Systems:

Diskworks (also operating as MAST) have now taken over the distribution of Expansion Systems products. These include the X1000 hard disk controller and the new Tiny Tiger controller. Both are available with hard disk for the A500 or A1000. The most amazing bargain of the day was the Unidrive (an external floppy disk drive) for a show special of \$199. Normal price is \$289. More details from Diskworks on (02) 436 2976.

Select Innovations:

A desktop publishing display courtesy of Adam Rigby, a frequent writer for this maga-

zine. Complete with Apple LaserWriter, Professional Page, Excellence!, and other word processing programs, visitors could see the equipment needed for producing quality printed output.

Commodore Business Machines:

While not out in force, Gary Mason from their support department did raise the Commodore flag with a clear perspex covered A2500-AT for display. Complete with a 68020 CPU and maths coprocessor, AT bridgecard, 2 Meg of 32 bit ram, and 1 meg of 16 bit ram, this machine was a popular conversation piece. Particularly along the lines of "if only I had the money". The AT bridgecard kit for the A2000 was also present.

Hopefully these products will soon be available through your local Commodore dealer.

Australian Commodore & Amiga Review/Prime Artifax:

The editor of this magazine brought with him the Prime Artifax range including the *Amiga Live!* disks (issue two is now out), current issues of the *Australian Commodore and Amiga Review*, and several of the Abacus range of computer books. These excellent books range from introductory material to Assembly language and few were left at the end of the day. (02) 817 0011.

Games:

Microcomputer Spot (Penrith) and Ozisoft combined to loan the AAUA all the latest games that were released for Christmas. With four computers available to play test these items, this display became one of the most popular

sections of the Open Day.

Particularly impressive among the games on loan were *Battle Chess* (drew a crowd of its own), *Rocket Ranger*, *Virus* (the game, not the problem), and *World Class Leader Board*. All the games on display are available through your local software retailer.

Non commercial displays were presented by AAUA members who gave a non biased view on a number of commercial products. Displays of *Digiview*, *Viatel*, and *Sidecar* were present as well

as several tables where questions on graphics, business, hardware and games were answered.

Amigaman BBS was to have been present but wasn't due to illness. Amigaman is the home bulletin board of the AAUA and can be contacted on (047) 588 006, 24hrs, 2400 baud and below.

The AAUA's own tables provided complete lists of over 250 public domain disks available for only \$4.50. The Association also sold blank disks at \$2.90 for Sony DS/DD and \$2.40 for Browns. These

prices are available throughout the year to AAUA members.

Members also attend general meetings held several times a year in Sydney and can be part of a local cell group which meets monthly. Cell groups operate in many locations around NSW and may shortly start in other states. A bimonthly newsletter is also sent to members. For details on joining the Australian Amiga User Association, write to: Membership Secretary, A.A.U.A., PO Box 389, Penrith, NSW 2750.

The AAUA Open Day is an annual event which has quickly developed into a popular Amiga show. One visitor compared it to the World of Commodore and concluded, "if you want to see lots of equipment, go to the World of Commodore. If you want to learn something too, try the Amiga Open Day." The AAUA would be happy to hear of other user groups attempting a similar display, if you're organising something, why not let the AAUA know, they may be able to help.

Public Domain Update

by Tim Strachan

The good software keeps coming - here are some of the disks that have recently turned up, including program and animation demos, utilities, graphics and so on. Keep your eye on the public domain as it is a great source of low-cost information and entertainment for your Amiga, and you can't beat the prices! All of these disks and more are available from Megadisc's PD Library if you can't find them from your local user group or BBS - see the ad in this issue.

- **3-DISK ANIMATION SET** containing all the classic Amiga Animations. Some of the Animations need two drives as the disks are set up but you can modify the disks to run on a single drive.

Disk #1 contains: Boing-Throws, FrogMovie, Tellstar One.

Disk #2 : Khanankas, GhostPool, MotionMachine.

Disk #3 : Bubbles, Tower, Car.

- **BRASSART SLIDESHOW #1 and #2** - 35 commercial

style pics on each disk by BRASSART, a French art company doing plenty on the Amiga. Set up as a slideshow.

- **HOME APPLICATION - Address** - small database. DB-Wiz - not so small database. Supermort - for financial calculations. DGCS - Deluxe Grocery Construction Set! (for lists). TextEd 2.1 - full text editor, easy to use. Scribble Dict - file for putting it in memory. NAG - "nags" you about appointments, birthdays, etc. Wordwright 62 - PD word processor

- **SCIENCE AND EDUCATION** - Plot 3D - Plot 3D curves. AmiGazer - Astronomy program. HP-10C - Scientific calculator. LEX - PD spelling checker. Airfoil - very technical aerodynamical graphics. Cardfiles - simple database. Weatherman - a weather forecasting program.

AMIGA TECH USERS GROUP PD

- **TOYBOX #1** - A disk full of games and graphics demos

(Colourful, 3D Cube, Reversi, SetFont, FixHunk, WhereIs, YachtC, Sproing, Zoom, FileZap)

- **TOOLBOX #5 - Utilities** (NewZap, Palette, Csh, Blitz-fon, Tutorials, SMUSPlay, ConMan, Ramspeed, Sili, MemClear, QMouse, Uedit2.0, TxEd demo, ASDGrrd, Turbocopy, Icontype) with docs.

- **TOYBOX #2 - More games and graphics demos** (3D Breakout, Cosmo, PSound, YaBoing, FilePrint, DisplayGlass, DisplayBrick)

- **TOYBOX #3 - Games, 2 Pics** (Juggler, Cosmo, Puzzle, Othello, Missile, Flipper, Checker)

- **TOYBOX #4 - Animations, Pics and Workbench Hacks** (Latin, Fractals, Ogre, Digiview, Daleks, Shanghai, DropShadow, Aegis, Splines and Tilt/Melt/Ing/Robotroff)

- **TOOLBOX #1 - Utilities** (Show lbbm, Quickcopy, DirUtil, Browser, SmClock, TimeSet, DiskZap, DPaintX, Pop-CLI, ShowHam, AltIcon, ZapIcon, Scrimper)

- **TOOLBOX #4 - Tools and Utilities** (Blitz, Change Kickstart, EGad Gadget Editor, PrtDrvGen, NewFonts,

- **CERATO DOUBLE-DEMO** - a 2-disk set showcasing the suite of programs put out by the Australian non-profit software company Cerato. All the 18 or so Cerato disks contain programs/slideshows of an educational nature for young children or slow learners, and make good use of the Amiga's graphics and sound capabilities. Check these out for your kids, and help support a good cause (see "Oz Products" on MD9 for a further discussion).

- **3 FONTS DISKS** with dozens of fonts adapted from the high-end desktop publishing program TEX, modified to be used as normal Amiga fonts, for use in programs such as Pagesetter, Deluxe Paint, Notepad and so on.

LETTERS

TO THE EDITOR

The truth about 1581's

In the letters column of your August magazine you answered a query from a reader regarding the availability in Australia of the 1581 3 1/2 inch disk drive. It is my belief that Commodore in their wisdom (?) have misread and "goofed" in the Australian market. It seems that due to the 1987 financial crisis Commodore U.S. found themselves in, Commodore attempted to shore up the marketplace of their true and tried C-64's and C-128's by producing a very modern disk drive in the 1581.

The whole of the computer industry worldwide is heading in the direction of 3 1/2" disk drives, and I believe that Commodore needed to follow this direction to maintain some credibility in a flagging marketplace. The 1581 is a modern, fast efficient disk drive, and distances itself greatly from the dinosaur that prevails in the 1541 (all versions).

The disadvantage of the 1581 is that many of the software houses don't support this format in supplying their software. With the help of copying systems, parameters, and the auto-boot program on the 1581 test/demo disk it is very easy to place a large number of programs in partitions on a 1581 disk.

I think that the lack of software on 3 1/2" disks is a function of the fact that copy protection systems (disk drive destroyers) are not so easily put on the 1581 drive format. With the trend in the U.S. of not putting protection systems on a large number of business and appli-

cation programs, the 1581 can really prove its mettle.

Commodore, with its Amiga, has gone to 3 1/2" drives. A fact that illustrates my comments about the modern trend of using this format. I believe that Commodore need to do a course in marketing and customer service, as it seems that they deliberately set about driving their customers off.

They stumble upon superb products occasionally and reinstate themselves in the market with probably the best machines available at the time, then fail to support them with solid sophisticated support. At the same time they destroy the market by putting white elephants in front of the public (insults in the style of the Plus 4 etc.).

When I first became involved on the computer scene, if someone had produced a C-64 it would have been four times more powerful than the machines that were in use in the company I worked for at the time, turning over in excess of \$100 million per annum. I suggest that, had Commodore set about supporting the C-128 in a reasonable way, the home computer market would have been theirs for a long long time (why buy a V8, 16 bit machine when a 4cyl, 8 bit machine will do?)

I constantly use a 1581 disk drive, as does one of my close friends, and there is no disk drive that will compare with it. I can take IBM files and use them in my C-128, Geos travels at high speed on it, CPM is a new world, and with my video ram upgrade, graphics are almost as good as the Amiga on a

high resolution screen.

As regards Commodore's claim that a power supply would be too expensive to produce, it only needs an upgraded power supply like the latest 1541 uses, as it draws slightly more current. The 1581 would run on a 1541 power supply, but I think it would probably burn out if it was used for any period of time. As to the cost to make a suitable power supply, I made one up that was fully regulated and can power the unit. It cost me less than \$30, and my knowledge of electronics is only elementary. I purchased the components at retail prices from Dick Smith and Jaycar Electronics. I would suggest that the real reason that Commodore are not bringing the 1581 drive out in Australia is that they are more concerned that they will lose some of the Amiga market. This is a very good machine but a large con-job by Commodore.

It is appalling to think that Commodore take about 10 days to provide their service contractors with parts etc. When I purchase spare parts (and upgrade ROMS) from the U.S. I get delivery in eight days on average. I deal with a Commodore dealer on the east coast of U.S. who does my repairs (I mail the faulty circuit boards or parts for repair), and they return them fully repaired in about three weeks, usually for less than it would cost for the same repair here in Sydney.

I had an experience like this soon after I purchased my 1581 drive. Had I been able to purchase the drive here, it would have been repaired under warranty (however,

that is another problem). After a month at a dealers here in Sydney (and with me supplying a service manual), I took my drive back, purchased replacement parts from the U.S. and was computing again in about two weeks.

This is an example of one of my experiences with a company who have some of the best computers (value for money available), and who have the worst product support of any products that I have chanced to be involved with in all my life.

I would encourage your readers to buy a 1581 disk drive from the U.S. They won't be disappointed! They will have the fastest disk drive available for these machines, and a storage medium with a whopping 3,200 blocks (790K bytes) of information. The penalty that they will have to pay is:

(a) They will not have any warranty on the disk drive as Commodore will not guarantee its products worldwide.

(b) They will need to purchase a power supply or step down (240/115 volt) transformer.

However, they will get a drive for about \$100 less than the latest 1541 (including currency variation and the supply of a power supply).

My experience with Commodore in Australia with regards to my 1581 drive, is that they won't even acknowledge that it exists! Commodore won't enter into any discussions with regard to pros and cons of computing with it, or offer any solutions as to programming with it. In fact I am almost viewed as a criminal by Commodore representatives for having it.

Richard Rumbel,
Chipping Norton

P.S. Keep up the good work in producing a top quality and informative Australian magazine to support the Commodore cause.

Thanks for your comments,
Richard. All I can say is well said.
- Ed.

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Toowoomba Commodore Users Group

It was noted in last month's Australian Commodore Review Magazine, that you were asking Commodore Computer clubs to write in letting you know when and where they meet.

I am the Secretary of the Toowoomba Commodore Computer Users Group. We meet on the last Friday night of the month, at 7:30 p.m. at the T.E.C. in Baker Street, Toowoomba.

Good luck with the magazine!

S. Finch
P.O. Box 2263
Toowoomba Qld 4350

Amiga music dilemma

As my wife is a private music teacher (piano and organ) we were looking around for a computer that could help us in teaching theory and practical, this was what we wanted more than anything else. Also we wanted to be able to keep our accounts in order. Not something great but good enough for a very small home business.

Well, we visited a few computer dealers of various brands and were asked what specific purpose we wanted it for, and when we told them for "help in teaching music" we were met with a blank look, and after much Hissing and Ahing were told "we are very sorry we can't help you". We kept on looking and came across the Amiga which seemed to be the answer. The dealer offered us a package deal on the A1000, it ran the *Deluxe Music Construction Set* and *Soundscape* which we thought would be of great help to us.

Before we finally decided the Apple, but it was nearly \$1000 more than we were offered on the A1000 (and we didn't like its appearance much anyway), so it was back to the Amiga. We had found

what we were looking for. The deal was the A1000, colour monitor, Epson GX-80 printer, the updated workbench 1.2 version, and the two music programs I mentioned before.

The *DMCS* we find is a program well worth having and a great help to us. On the other hand, *Soundscape* is very hard to follow - maybe I am a bit thick up top (being another one of those old timers, 62 before the end of the year). We are having a bit of a problem working it out, but between us we will beat it.

As some of our instruments were manufactured by the Roland Co. we had seen some literature advertising some of their other products and had come across some software packages on teaching music (available only from Roland dealers). On enquiring we found that they were for IBM-PC and Apple, also they sold for something like \$800 or \$900 per package, so with a very sour taste in our mouth we said "out of our price range anyway".

Well, imagine our surprise when we received a brochure from the Conservatorium announcing the in service courses for the coming year with a loose leaf inside the front cover advertising weekend workshop to be held at the Roland Company's complex at Dee Why on the 6th and 7th of August at a cost of \$60.00 for the two days. This workshop was being held in conjunction with the Conservatorium and was for teachers and lecturers only. Anyway we were too late to enroll for this Seminar, but on ringing the Roland people I was informed that they were having a one day workshop the following weekend (Saturday the 13th) to which my wife and myself were invited.

I think at this stage it might be a good idea to say what these Seminars were all about. The lecturer was Mrs. Smadar Gibberman of Israel who together with her husband

is the co-founder of the Xanadu International Co. in Israel who produce and market Musicom Software Programs in conjunction with Roland.

So my wife and I trotted along to this workshop and boy were our eyes opened. I have never seen anything so comprehensive as the 13 programs that were demonstrated that day. These packages were designed for lecturers and teachers with topics like Computer Assisted Music Learning, What Technology Can do For the Teacher, Gaining Attention and Holding Interest.

Each program represents about one years work and covers areas like harmony, elementary theory, ear training and sight singing, jazz for keyboard, rock for keyboard, keyboard performance tutor and more. The student must learn because the computer will not allow him or her to go past a lesson until they have got it right.

I have never been so enthused over a series of programs like these before, but now comes the crunch as I said before these packages are only designed to be run on the IBM-PC.

We were able to talk with Mrs. Gibberman during the course of the day and asked her when she arrived back in Israel to please make this software available for the Amiga, to which she replied "we are bringing these programs out for the Atari in the very near future". So all I could say was, why, the Amiga is a much better computer besides they are outselling the Atari 2 to 1 (a figure I picked up around the track).

However, I believe that it will take someone with a lot more clout than me to talk to these people and upon reading the article by Eric Holroyd in the August issue of your magazine I can understand why the Gibbermans would prefer to write these programs for the Atari.

Well the upshot of all this is that it looks as if we will have to

update to an A2000 and become compatible with the IBM-PC so that we can introduce this teaching method into our studio and keep up with modern technology.

*Ken Bellerby,
Fennell Bay.*

A500 - Peripherals

First the praise. Yes, I also support the magazine and recommend it to friends. So it's with good intentions that I comment on your reply to the letter by Paul Matthes of Newcastle, in the October ACAR.

Unless I missed something, your reply seemed to amply reassure the working reliability of the A500 but glossed over the questions on peripherals.

Firstly, I disagree about your write-off of the 1901 monitor for the A500. I've used one for months before I could afford an 1084 monitor. The 1901 must be used in PAL mode with a video modulator such as the A520. This is included in many A500 packs or costs about \$80. The definition is not as sharp as that on the 1084 monitor on RGB output, but better than that on a TV set, and I found it bothersome tracking the cursor in Amiga Basic edit mode using the default colors.

If you're interested so far here's how to do it. You need two lengths of coaxial cable, each 4mm thick by about 1.5m long. On one attach a 'male' RCA plug to each end, while on the other attach a 'male' and a 'female' RCA plug. You should find a short 'Y'-form RCA coaxial cable in the A520 mod pack, or one should be obtained, with a 'male' RCA plug on each of its three ends.

Connect the 'male-male' cable between the A500 left audio socket and the 1901 monitor audio socket. The 'male-female' cable connects between the A520 Mod video out socket and the base of the 'Y' cable, which then connects to the Chroma and Luma ports of the monitor.

Change them over if you don't get a picture and label them accordingly. If there's no colour, check the connections, or at worst, toggle the colour settings in Workbench Preferences. The cables and plugs cost about \$10 at Disk Smiths.

I've successfully used the MPS1000 and MPS1250 printers with the Workbench MPS1000 driver, so the MPS 1200 should also work on this driver.

I hope you find some of this useful and you could easily verify it. There is a sketch of the connections included on the attached sheet.

*M. Matera,
Lansvale*

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Our book **Treasure Chest** for C64/128 is still available. It is a compact and handy guide full of unusual programs, sub routines and programming hints. Learn to use POKE PEEKS **USR SYS** and other tricks, buy the book and get free Lotto Analyser, Typing Tutor or Maths Tutor on disk or tape.

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Entertainment Roundup

New Releases ★ Dragon's Lair ★ Changing Trends

New releases

As 1988 came to a close, a new era dawned in Amiga entertainment software. Software written and designed completely on the Amiga reached the sort of quality we've been waiting for. Games like *Hybris* and *Menace*. At the same time, a few long awaited releases hit the streets. *Outrun* made it just in time. Was it worth the wait? We were less than impressed. A full review will appear next month - however for a very candid description and opinion on this Atari game port, read *Amiga-Live!* issue two (out now).

C64 and 128 owners are still being well supplied thanks to a strong European and British base of consumers. In the USA, the C64 is strangely enough being ignored by some developers.

Dragon's Lair

Easily the most exciting release impending is *Dragon's Lair*. For the uninitiated, this game originally appeared in arcades as a Laser Disk based machine. As the player reached certain points in each cartoon scene, a quick jiggle of the joystick caused your character, Dirk the Daring, to dart left or right, or slash his sword. Games were one dollar a pop in downtown centres.

The fad seemed to go as quickly as it arrived. Before long, laser disk games succumbed to high failure rates and expensive repair bills. It seems disgruntled players couldn't help rocking and kicking the fragile machine.

On a laser disk, many scenes could be stored. Because of its fast access times, moving from one scene possibility to another was

not noticeable.

Now a company called Ready Soft are promising a six-disk Amiga version. A demonstration disk is already around (see Amiga Notepad in this issue for details on how to get your copy) and C64 owners have played a simple version for some years now. However this version promises much more than the C64 effort, and maybe even more than the laser machine. The demo is smooth, the animation cartoon-like. And of course, like any good computer game, the actual game flow or game play will be slick - better than the original machine.

An Amiga can generate dozens of scene options, whereas the laser disk is stuck to whatever you have recorded. Whether the game designers have used real time animation constructed as you go, or drawn on fast decompression techniques to replay "prerecorded scenes" remains to be seen. However, we can be

sure that this game will rock the foundations of the games industry. If it's anywhere as good as it looks, that is! We wait in earnest. (NB: The game will require one megabyte to play.)

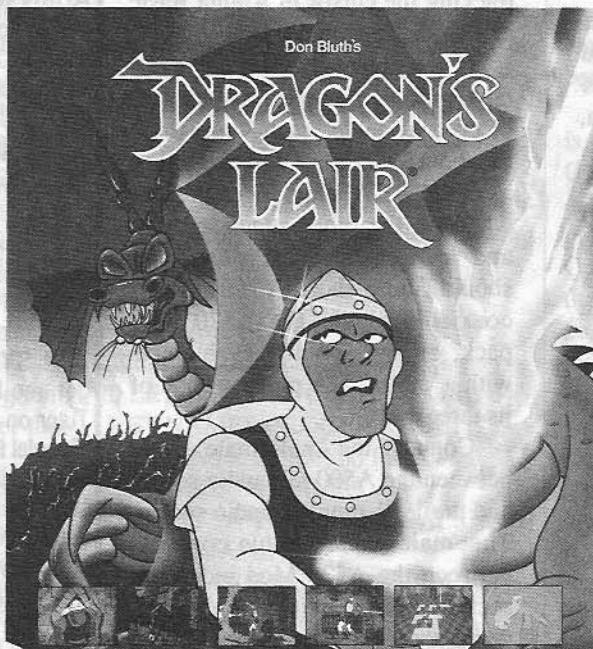
Changing trends

Games are certainly changing. Although we still get a swag of shoot'em ups to play every month, the games that grab our attention are the likes of *Rocket Ranger* or *Defender of the Crown*. Games that offer more. Entertainment, combined with relaxation as you watch the screen perform.

Trends in programs emerging from hackers in the UK indicate that even non-US based companies are looking to more complex animation and backdrops rather than faster action, and sprites or colour bars in the border. Some prefer this genre of game from time to time. They tell a story. Eventually, if and when CD ROMs get cheap enough, this type of game will really start to reach new limits.

Infogrames, the guys who produced *Rocket Ranger*, look forward to these types of devices becoming readily available, just like disk drives are today. They already have game scenarios and programs ready to implement.

The days of the passive movie will be gone. Instead, you will always have the option to play the lead role or watch while someone else does. The technology exists now. All we need is time, and a bigger market, then the makers of these add-ons will look at the home market, and game playing will never be the same.



Clicked on Games

Clicked on Games

Clicked on Games

by Ken Longshaw

AMIGA

Chess always has been about the defeat of the opponent by logic, subterfuge and bravado. The majority of us are familiar with the few rules of play and totally oblivious to the vast skill and intelligence involved in mastering the game. We own the few chess game packs available and some of you may even get them out and tinker every now and again. I don't.

Well, all of that is about to change. At least the bit about not playing chess much, is about to change. There is not much anyone can do to boost a standard run-of-the-mill intellect to genius status. And who wants to be that boring anyway?

The game that is causing all the fuss is *Battle Chess*. It's a new look at the old, the bare bones of the matter, the truth about the warlike spirit, a fresh breath of humour in a stuffy corridor.

With the game booted there appears a 3D view of the board and a request for the "n"th move of the game played by "Borris Vanwhosovitch" and Mikael Dobwhatsavitch" at Helsinki in 197*. This fools the pirates without photocopies and frustrates the impatient.

The game commences. The menus are pulled down by holding the right mouse button. With cherubs holding the scrolls on which the menus appear, you set up the game. Choose to play yourself as White and the Amiga as Black.

I'd like to state here that it is widely regarded as a bad move to play against a computer, no matter what level of play

the machine is set at, unless you are Bobby Fischer. Another interesting aside is that it has been noticed that the Amiga will cheat if you start to win at the higher level of difficulty, so look out for the pieces moving about when you are not watching. (Those handheld chess games are said to do the same, though!)

So the game commences and you send the King's Pawn marching off to control the middle square. Cute the way the sound coordinates with the footfalls. Black King's Knight to Bishop 3. Nifty marching. White Queen's Pawn to QP3 and so on through the game . . . do you like the way the Queen's walk makes you laugh? Her posterior motion reminds me of two melons dressed in velvet, doing a dragon dance. Black Knight takes White Knight and you wait while the animation sequence comes off disk.

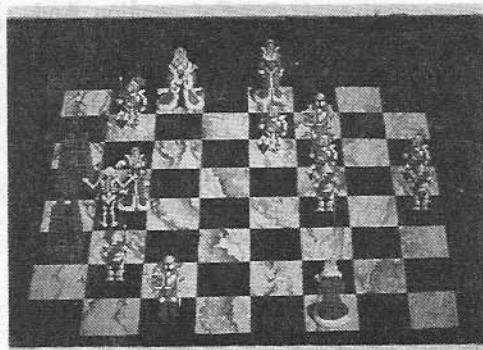
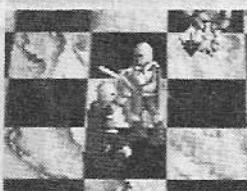
So you are about to lose your first piece. The Black Knight marches proudly into the square and your brave sacrificial lamb moves off to the white corner. The lines are drawn, seconds out of the ring. Swing, clash, bang, grunt and the Black Knight severs the right arm of his opponent.

White Knight looks in dismay at the red stump and swings his left in a valiant attack, only to lose it. A brief glance at the fresh stump and the brave fool throws a kick with the right leg. Off it comes and suddenly you fall off the chair as the Holy Grail comes into view.

Now you get the angle this game takes. It is all a bit tongue-in-cheek and light-hearted. If you think chess is all work and no play, try King takes Queen! The sexy little queen shuffles, swaggers, and swings her hips over to the black corner.

By the way, you will have to play both Black and White yourself to see this, no self respecting computer would allow this sort of tomfoolery. The King shambles in and the two meet in centre ring for a steamy little tryst, till the Queen slips a knife from her sleeve and raises it to strike. The wily old king is ready, though, and a shriek from the scheming queen is the last you hear as she falls to a very unladylike pose on her now-not-so-swaggly-rear-end.

The Rook is a monster when it comes to moves. This stone character comes to life, grows legs, arms and . . . well, generally become a stone monster, with footsteps like a mono-ped whale. A slow mover on the long haul but the Rook makes up for this and really packs a punch when it gets to the skirmish. If you want entertainment try Rook takes



Queen. Talk about making a meal out of it! [Think about it!]

The animated sequences are superb and if you get *Battle Chess* for no other reason you will be satisfied. I have spent a whole afternoon just slaughtering the board's occupants in the name of humour. There are about eighty different sequences to play through and they each take a few passes over the field to get the full story.

At time of writing I was not quite through verifying a seeming anomaly. Every now and again there appears to be a slight variation on the animated sequence. To be more specific, the phenomenon has been seen once when the king simply opened his cloak when the queen walked in and she shrieked and fainted, fatally of course. However I cannot say if this was a bug or if it is repeatable.

For the serious player of the game there is a 2D version and some stunning tutorials in the manual. As a pretty average chess player I have never taken to heart the intricacies of the game. In two well written chapters I learnt more about the techniques of real chess than in 20 years of "play". There is a walk through game and an invaluable section on chess notation. Try this little game:

White	Black
1. P-K4	P-K4
2. B-B4	B-B4
3. Q-R5	N-QB3??
4. QxP mate.	

Impressed? I was.

The individual importance of each piece receives six pages of attention. And the manual closes with nine pages of historic games.

In conclusion I can say that this one of the few games I was willing to go out and spend the money on. It ranks with *Interceptor* for lack of boring capability and endless playability. A definite must for the next shopping spree.

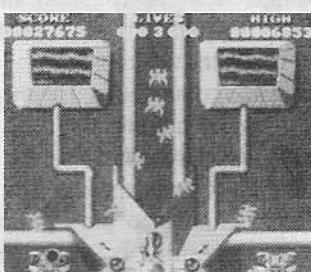
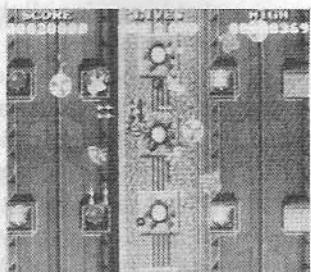
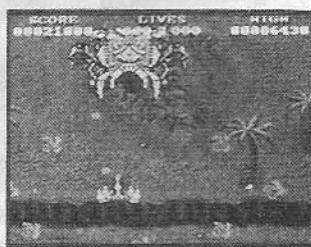
Our review copy (Amiga) came from OziSoft. RRP \$69.95



by Andrew Farrell

to the limit.

This is the sort of stuff real games are made of. Excellent presentation. Definitely check this one out.



Hybris is a top to bottom scrolling arcade quality game, that is packed with challenges. As you progress the opportunity to upgrade your ship to a more powerful configuration will arrive - pick up the extra part and you're ready to cope with the next onslaught of ground and air based attackers.

Pressing the return key lets your ship pack more punch, but the effect is only temporary. At the end of each stage you face a giant alien ship that can take a number of shots to destroy. There's smart bombs for really tight situations, and a pause key so you can take phone calls or make a coffee.

The action is truly top quality. When you finally lose all your ships, the option to continue play from the current level appears as a count down timer. To get through the higher levels it's essential to maintain a high ship configuration - as in collect all the parts without fail. Collide with another ship or absorb a direct hit, and you lose the most recent addition.

So even though it's possible to explore the higher levels quickly, to beat them you need to play the lower levels

Our review copy (Amiga) came from OziSoft. RRP \$69.95

AMIGA ANNUAL 1989

Bionic Commando

(Amiga)

A review by Eric Holroyd

I had reviewed this game in its C-64 version in ACAR of September 88. I liked it then but I must be absolutely honest and say that I like it so much more on the Amiga. It's the graphics again, you see. Definition of the characters is better, as is the scrolling around and the Amiga's colours and more realistic sound effects add to this already good game.

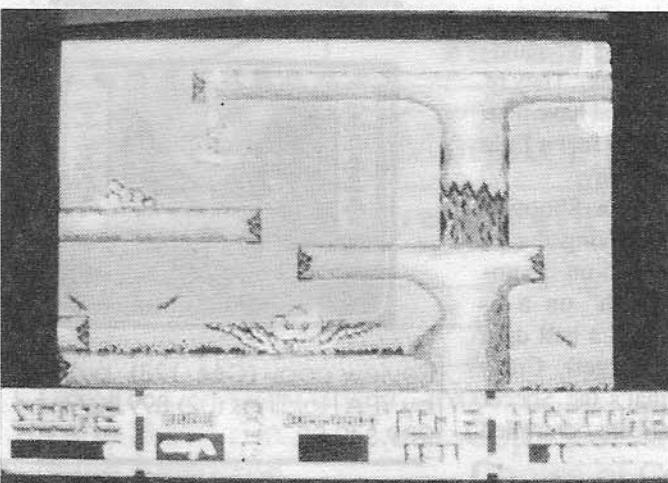
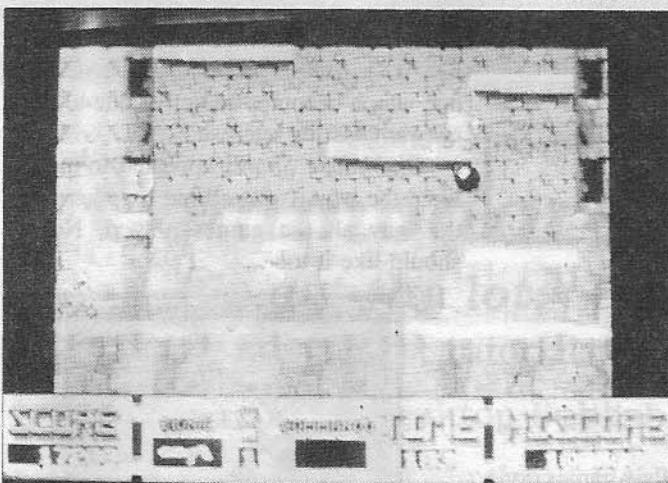
Some games I've looked at on both machines have played better on the C-64

but in this case I feel the Amiga version plays and handles better generally.

The scenario is similar to that of the C-64 version so I won't rehash the whole thing here, I'll just refer you to the previous review for that. Back issues of the magazine are available on (02) 398-5111 if you aren't familiar with the game play.

Once again it's joystick controlled and my enjoyment of this game was enhanced with a new joystick which I was trying out. This is the STARCURSOR joystick (distributed by MultiCoin (075) 37 5452) and it's a very solid unit with 4 or 8-way gate control. It's quoted as a "professional computer joystick system" and I found it to be quite precise and good to play.

I haven't got too much more to say about this one except that I like it a lot, I'm still playing it, and I haven't yet stopped the launch of the Doomsday Missile.



Review copy furnished by Ozisoft (02) 211-1266
Amiga \$69.95, C 64 cassette \$29.95, disk \$39.95

Chain Reaction

by Eric Holroyd

In this shoot 'em up by Durell you're once again the only one who can rid the world of the alien robots! This time they've taken over the atomic power station and you have to eliminate them.

In order to do this you've been given a powerful disintegrator gun and jet boosters on your space boots. To make it more interesting the robots are highly radioactive.

There are a series of rooms on several floors, each with a number of doors. You need to explore the whole place room by room, exterminating a robot in each one as you go. Watch out that you don't fall down the hole in the anteroom, it's a void with no return (avoid the void, so to speak!).

Some rooms have lifts to take you to upper floors (different colour scheme for each floor too) and you need to be careful not to fall down any holes here or you'll end up back where you started.

Perspective is of the Zaxxon kind and your alter ego looks a little like the hangar pilots in *Raid Over Moscow*. Control him with your choice of keyboard or joystick and use his jet-propelled boots sparingly as he only has limited energy.

If you don't blast the robots quickly they contaminate you with radiation and you'll need to find the shower room to wash it off and restore your energy to full power. I liked this touch as it meant I had to remember where I'd been before and how to get back to the shower in a hurry. There are lots of rooms so a bit of mapping would be in order too.

Although this isn't a new idea it's a pleasant enough implementation and I really enjoyed playing it.

Review copy furnished by ECP (075) 963-488 C 64 RRP \$34.95 (disk) \$24.95 (cassette).

TYPHOON

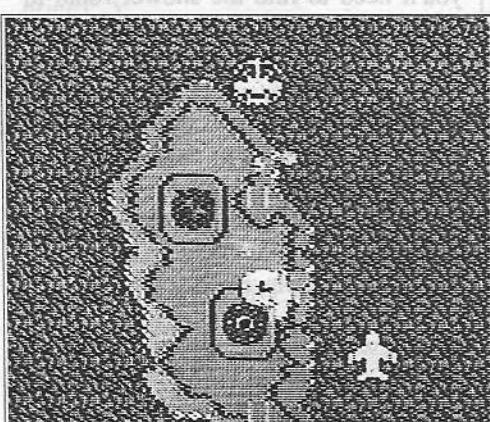
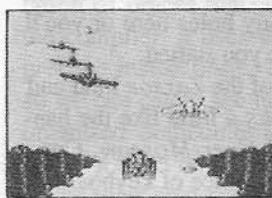
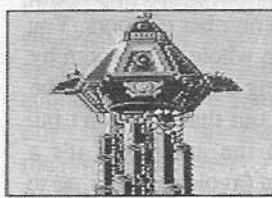
by Eric Holroyd

Here's a conversion by Imagine Software of the Konami coin-op game of the same name. It's been converted very well and although I haven't actually played the one in the arcades I've watched the neighborhood kids on it so I knew what to expect when I booted it.

It seems to be all there: the groups of red enemy planes diving at you out of the clouds, the gunfire from the aircraft carrier and the rest.

You're flying an F-14 jet fighter in the first level, the aerial dogfight, and in the second level you're in the helicopter/gun ship trying to bomb the aircraft carrier. There are eight frantic levels which all play very well and I'm not going to spoil your fun by telling you what happens in each one.

I will say that you get to collect and use a huge variety of deadly weapons by



shooting down an enemy supply helicopter. If you're quick enough to blast one of these you'll collect its cargo and get weapons such as triple fire, laser fire, air to ground missiles, and others.

You also have a "mega bomb", launched by pressing the spacebar, but you're advised to use it only if you're in danger of getting killed yourself. All other controls are via the joystick and it certainly helps a lot if your stick has a rapid fire option. You'll need lots of dexterity and a quick thumb otherwise.

This game is fast and furious fun, it's well up to Imagine's usual high standard and I enjoyed it a lot. ■

Review copy (C64) from Ozisoft
(02) 211-1266 RRP \$29.95
(cassette) \$39.95 (disk).

Clubhouse Sports

by Eric Holroyd

Here's a compendium of six games done by Mindscape Inc for the C-64. It's a lot better than other collections I've looked at and each of the games is a "stand-alone" program so to speak. They're graphically quite realistic and have nice sound effects so you get to feel a little of the atmosphere as you play.

There's 3-D Pinball, a Shooting gallery complete with moving ducks, Billiards (play "Carom" on a no-pockets table or "English" on a 6-pocket job), Skeeball (roll a ball up a ramp and into a ring-target), Crazy Pool, and Foosball (that's the Soccer game where the players are controlled by rods).

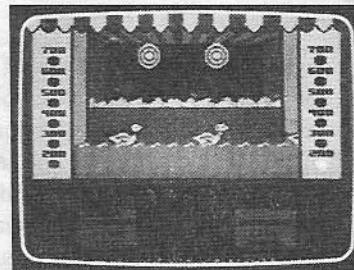
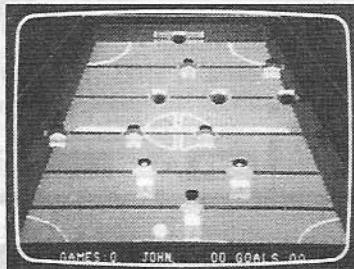
One or two players can take part and high scores are saved to disk to keep track of the champions. Skill levels from beginner to expert are chosen from a menu and there are many other menu options for each game.

For instance, in Billiards you can adjust table friction (which of course determines how far the balls will roll) and decide what constitutes a winner (reaching a given score or best out of a certain number of shots).

In Pinball you select table angle from Low, Medium or High and also set the default scores for when extra balls are awarded. In the Crazy Pool game you may use the Construction Set to build the table any way you wish, or you may load in a preset table.

All the games have several choices and I liked the way I could set each one up a different way each time I played. This is what makes the difference between an ordinary computer game and one which becomes addictive due to variety and lasting interest.

Clubhouse Sports appealed to me, I liked the way it was all put together and the way all the games played. Norm should like it too ... ■



Review copy (C64/128) provided by YPA Holdings (02) 899 2277 RRP \$49.95.

Capone

Have the game designers gone too far with this creation? Phil Campbell examines the ethics and the graphics behind this light-gun shoot-em-up.

Realism in "new-tech toys" has gone too far, according to an increasing number of British psychologists. Interactive television is their latest concern.

You may have noticed a half-baked sci-fi series flash by your screens in the last few months - "CAPTAIN POWER AND HIS SOLDIERS OF THE FUTURE." Big name. Little ratings.

Unfortunately, the program on its own is boring. But add an interactive light sensitive gun and the show takes on a new dimension. With it, you can score points by firing at encoded targets on the screen.

Usually, these flashing targets are people. Granted, they are bad guys, they are ugly, they are mean. But they are people. The anti-violence lobby argues that the TV show is providing target practice for youngsters and bringing acts of aggression to the forefront of impressionable minds.

As far as I know, the Australian screening of *Captain Power* was gunless. Nobody mentioned that this was "new-tech" TV. The alert viewer may have wondered why so many of the bad guys wore flashing suits - Al Grasby beware - but the interactive intentions of the program were well disguised.

Interestingly, however, this month has seen the release of a computer game which raises exactly the same questions.

Capone is the first in a series of Amiga games which put you behind a light sensitive gun. "Go ahead - Make your day! Now you can shoot the bad guys with this real-time action shoot-em-up adventure," says the

brochure that comes with the game. And this is not misleading advertising. The gun works extremely well, and the Amiga graphics and sound effects create a realistic atmosphere.

The game opens on a Chicago street. The year is 1928, and gangsters rule the town. You play the part of an undercover cop. Your job is to clean up the joint, and clean it up good - "pick up your machine gun and blow'em away."

Before you begin, choose a rank - Cadet, Rookie or Captain. The higher levels are faster, and a lot harder.

While you shoot it out with the bad guys, you must avoid hitting innocent bystanders like the kid who keeps riding by on his skateboard. This game is socially responsible - everyone knows that you shouldn't shoot kids on skateboards, so there is a 3,000 point penalty for accidental homicides. Women cost 2,000 points and dogs and cats 1,000. An interesting scale of values.

Machine-gun toting gangsters appear in windows and on the sidewalk. Shoot quickly, or they will open fire on you. Some drop sticks of dynamite. Pick these off, or you will disappear in a puff of smoke.

Even more dramatic is the warehouse scene. This time, you face the bad guys inside a building crammed with crates of TNT. Stray shots are not recommended.

Naturally enough, the difficulty level of the game depends on how far from the screen you wish to play. The gun works from as far away as four metres. I preferred to shoot from a little closer.



The accuracy of the gun was impressive. Small red "splats" appear on the screen to indicate where you hit; after a few practice shots, skill takes over from mere good luck.

Capone is a top quality game. I enjoyed it a lot. Still, I felt uneasy when my kids asked for their turn. Is this really any different to the countless other computer games that I have played without a moment's remorse? Is it any worse? Perhaps it is. Perhaps *Capone* is just a little too real.

Capone is distributed in Australia by Questor (ph 697 8666) and retails for around \$50. The gun attachment, an optional extra, sells for \$99.95.



Flipped on

by Andrew Farrell

Here is the electronic answer to Rubik's Cube. It is not a cube. It is a puzzle. The game design and programming were performed by a local company based in Perth.

At first I was sceptical. I dislike puzzles. Rubik's cube was actually designed to break your wrists, and any computer screen imitation is only a poor copy.

Flippit is different. I first played it at a function for Grace Bros at Sydney's Pier One. After a couple of cocktails the game proved too much of a challenge.

My next attempt was after hearing the story of the Perth company who kicked off not so many months ago. A story on their rise to fame appears next month. They are doing some wonderful things. *Flippit* is the first.

The idea is simple. The implementation elegant. In play the game is captivating and entertaining.

You begin with a grid of squares, each filled with a patterned tile. To the left, on a smaller scale, is your objective. The same tiles in a grid, rearranged slightly.

To achieve your objective you don't just slide the tiles around. Clicking on a tile causes that tile and others around it to react in a certain way. They can either flip to the other of the two possible patterns or remain the same. So you must first figure out the laws of the current level you are on. Then you can think about solving the puzzle.

The earlier levels are dead easy. Which was a good thing. I had the pleasure of solving at least ten levels before I

ran into anything tough enough to start confusing me. There are over 100 levels of play, difficulty increasing with the level number - very addictive.

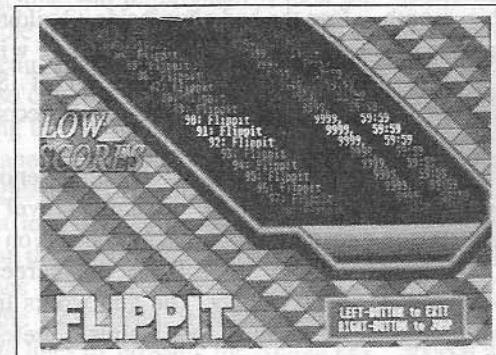
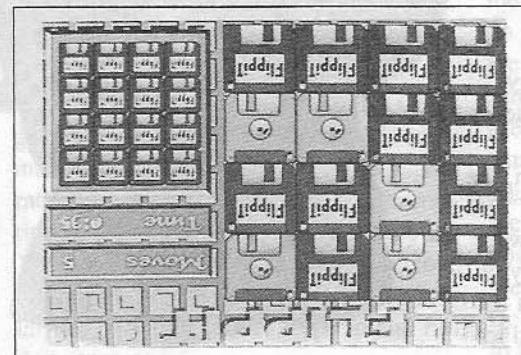
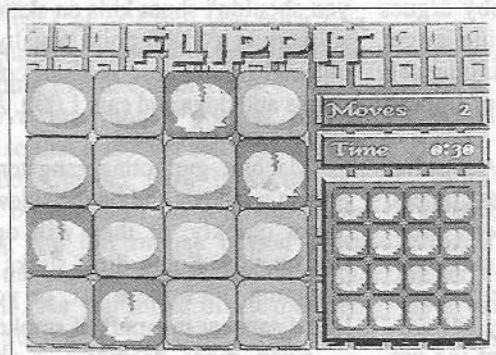
Screen design is smart, a pleasant musical arrangement accompanies your bid to solve each level. Having completed a level your score is recorded along with your name.

Entering your name is quick and simple. Just point at the letter and click. Point at end to finish. You switch the music off at will.

Overall, *Flippit* is the best puzzle game I have ever seen. It is even better because it was written in Australia. A credit to our local talent, and proof that what is to come will be worth waiting for.

One point of interest is the game protection. A paper dongle is used. A tiresome thing, but a fact of life. This one is hard to copy, but easy to use. Well thought out. The included instructions are adequate.

Flippit is available for all popular home computers including the Amiga and C64.



Our review copy came from Pactronics
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Time and Magik

by Tony Smith

Following the successful adventures released by Level Nine for the 64 it was only natural that some of the old favourites would be brought out for the Amiga. This has now been done with the release of *Time and Magik*.

This is a trilogy of adventures starting with *Lords of Time*, an old favourite of mine from the 64 days, *The Red Moon*, a follow-up from the first one and finally *The Price of Magik*, the grand culmination of the trilogy.

All three games have been enhanced by a new parser, which can be copied onto other Level Nine adventures already released on the Amiga. *Gnome Ranger* and *Knight Orc* can be updated in this fashion to give such features as ram save and load and an UNDO feature which can save a lot of anguish when you are killed a long way from the start.

The best new feature of the parser is the ability to edit previous commands by moving the cursor to a previous command line and simply changing it or modifying it to suit the new situation, why didn't someone think of that before?

All three adventures have tremendously updated graphics, a far cry from the slow ones which were a feature of some of Level Nine's later 64 adventures. They are stored in a cache' in the Amiga's copious memory so they can be quickly accessed without any disk loading delays.

The pictures I have seen so far have been very atmospheric and serve to set the scene very well or make you feel apprehensive whichever is the case. Also the pictures can be raised like a blind to show the text beneath.

First in the trilogy is *Lords of Time*, an excellent adventure from the early days. A very complicated quest, it was well ahead of its time when first released for the 64, and suitably enhanced for the Amiga becomes a favourite once again.

The quest involves collecting nine treasures which are scattered through

time. This is no mean feat considering there are over fifty locations to visit, each containing many puzzles, characters and objects. There are more than 180 objects and characters that you must visit, examine, pick up, avoid or ignore in order to complete your quest.

On your travels you must visit different time zones from the distant prehistoric past, through the middle ages to the present, seeing Tudor times, ice ages, the Vikings and working your way to the future and then the far future. Just to get you started on this fine adventure I'll set the scene for a start.

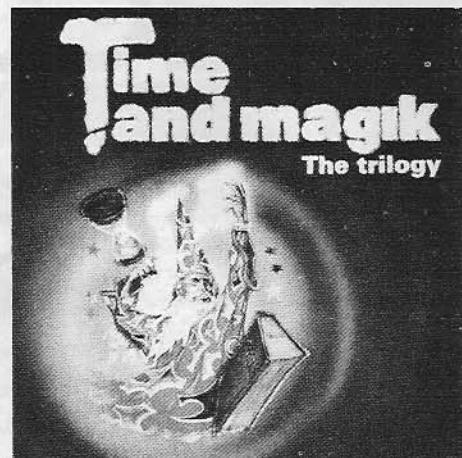
From the first room examine everything as you go. Look at the picture on the dressing table and get the matches etc. Then open the clock and wind it, get inside the clock and you will see some cogs with numbers, choose a cog and turn it, then Push Pendulum and you will be on your way.

A hints if you are stuck near a woolly mammoth in the ice age, return to the present, find the Porches and in it you'll find a can of petrol, go down the pit and you will be back in the clock, return to the ice age and use the petrol to start a fire. The mammoth will run away and that's that. Be sure you only use petrol to start fires in games and not in real life!

The Red Moon is the second game in the trilogy and is also of a very high standard with the same parser and quality of graphics, with you as the central figure. This time the quest is to recover the stolen crystal.

There are some magical spells to help you this time and you may be lucky enough to find some helpful treasures on the way. But beware of Hagelin, he's the dude that ripped off the crystal.

The third game in the series is *The Price of Magik*. This time it is long after the recovery of the crystal from *The Red Moon* but unfortunately another of



the guardians has flipped his lid and thinks he can make himself immortal by stealing it.

Myglar is his name and he has been driven mad by being too close to the crystal for too long. That is something to bear in mind in case you do manage to recover it, don't hang onto it for too long. Myglar has found a way to enhance the crystal's powers and harness them so beware of your own sanity when you battle him.

In conclusion, this is an excellent trilogy. The games do not have to be completed in a sequence, they are all independent in their own right and if you get stuck in one you can still enjoy the others.

To anyone who has played them before on the 64, they will be rewarded by the digitized pictures to bring back the familiarity and the improved command lines making them much easier to communicate with.

Newcomers playing them for the first time will be thrilled with the ease of use and tremendous graphics, but they are not games you will play for an hour and then put away.

They are full blown sagas and will cause you much thought, anguish and frustration. But you will be rewarded by rich text descriptions and atmospheric pictures which convey the feeling to you far better than just plain text adventures.

Review copy from Pactronics
(02) 407 0261 C64 tape \$29.95
disk \$39.95 Amiga \$59.95

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Chaos

by John Hatchman

HERE WE GO AGAIN with another rave review (I wish). Remember what games were like on the Commodore 64 about three or four years ago? They have returned to haunt us in the form of *Chaos*. This seemingly average game will be enough to turn anyone off the 64 for ever.

Anyway, here is how the story goes. Just imagine the world's defence and safety rely on a computer - and not just any computer, an IBM of all things. It just so happens the computer has developed a few bugs and surprises that put our whole civilization in jeopardy.

Mr Hero in this case doesn't go by the name of James Bond or Fletch, his name is Mike Rosoft. Urgent messages from the Pentagon are sent and so Mike is put into action. He has to carry the burden of losing his job and the reputation of IBM if he makes just one simple mistake. It also means sudden death for our hero because of the electronic guards. Yes, not only has the super computer gone bonkers, the electronic security guards are on full alert for any human found wandering in the complex.

Back at the main office of IBM Mike meets up with his boss, Mr George Hackem, who gives Mike his orders and says that it's time for him to go in. Mike argues "Why me?". George replies, "You're the only one who knows where the bugs are, and only you can fix it". Mike with a quick reply, "Why don't they send in the army?" George replies, "That would void the guarantee, and they would more than likely ruin the whole computer with weaponry." Mike with a disappointed grin on his face says, "When do I leave?" "As soon as you get changed into some decent clothing for the job."

Mike hurries home, gets changed and returns. He is then transported to the security complex with his special laser rifle, which has been made so he can destroy the electronic nasties which await him.

Enough with the story! Let's get stuck into the game play. To sum it up in one

or two words, it stinks. The game has been made with the qualities of a 1984 game like *Chuck Norris* or a game of that status.

Movement I found is very sticky in places where you have to follow the road and manoeuvre around oncoming robots or soldiers. Edgy is the word to describe it, just one touch of the stick means a fast sharp move in the chosen direction. Which in some cases means instant death if you are trying to time something.

Colour choices could have been made more carefully or at least checked that they could be easily seen on any screen, not just a good quality monitor. A couple of friends of mine who had a quick game on their computers with TV screens found the going tough, the green on grey just doesn't work. Not a perfect match.

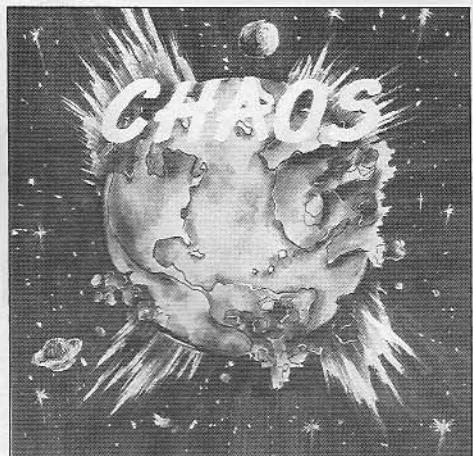
Difficulty in the game doesn't seem all that hard, but a little more room to move or even just slowing down the jumpy man scrolling routine would help one hundred percent. As for your high tech laser rifle, it still takes more than one shot on certain obstacles which should go down in one blow.

Going by the format of this game, the programmer Darryl Bartlett is either new to this game programming or he should take his time. These days it is either a real good game or it is not so good, with this modern day software market, it's a cutthroat job. Can only try I suppose.

Unfortunately I didn't have the price tag for this software package available, but in my opinion this game would not be worth much. You could obtain a decent game for a reasonable price. After all you get what you pay for, correct.

Graphics in this game/adventure are rather poor and there is a very low grade of music which is better left turned down. It's up to you now - take care, readers!

Review copy (C64) from
ECP (075) 96 3488
RRP tape \$24.95 disk \$34.95.



Graffiti Man

by Eric Holroyd

I didn't like this one at all! Maybe the fact that it's about being a member of a graffiti gang put me off a little, although the game play itself didn't grab me much either. With all the recent publicity in Sydney about these gangs I'm surprised that it's even been released and I'm sure that parents won't be buying this one to give the kiddywinks ideas.

Basically, you're a guy trying to join up with the aforesaid graffiti gang and to do that you need to prove your worth. First of all you have to get from one end of the street to the other by dodging pedestrians, skateboarders, policemen, and missiles thrown out of windows at you.

If you survive this lot you get to demonstrate your artistic prowess by copying a piece of graffiti by spraying on the wall alongside it. There's limited time to do this but accuracy in drawing gets you points.

There are several levels to get through and you have three lives and 12 cans of spraypaint in each life. Lose all three lives and a big policeman carts you off to jail. Game over!

There's no mention anywhere of the IQ required to play *Graffiti Man* and as I said at the start, it didn't appeal to me at all. In a word, tacky.

Review copy (Amiga) from
Ozisoft (02) 211-1266,
RRP \$49.95.

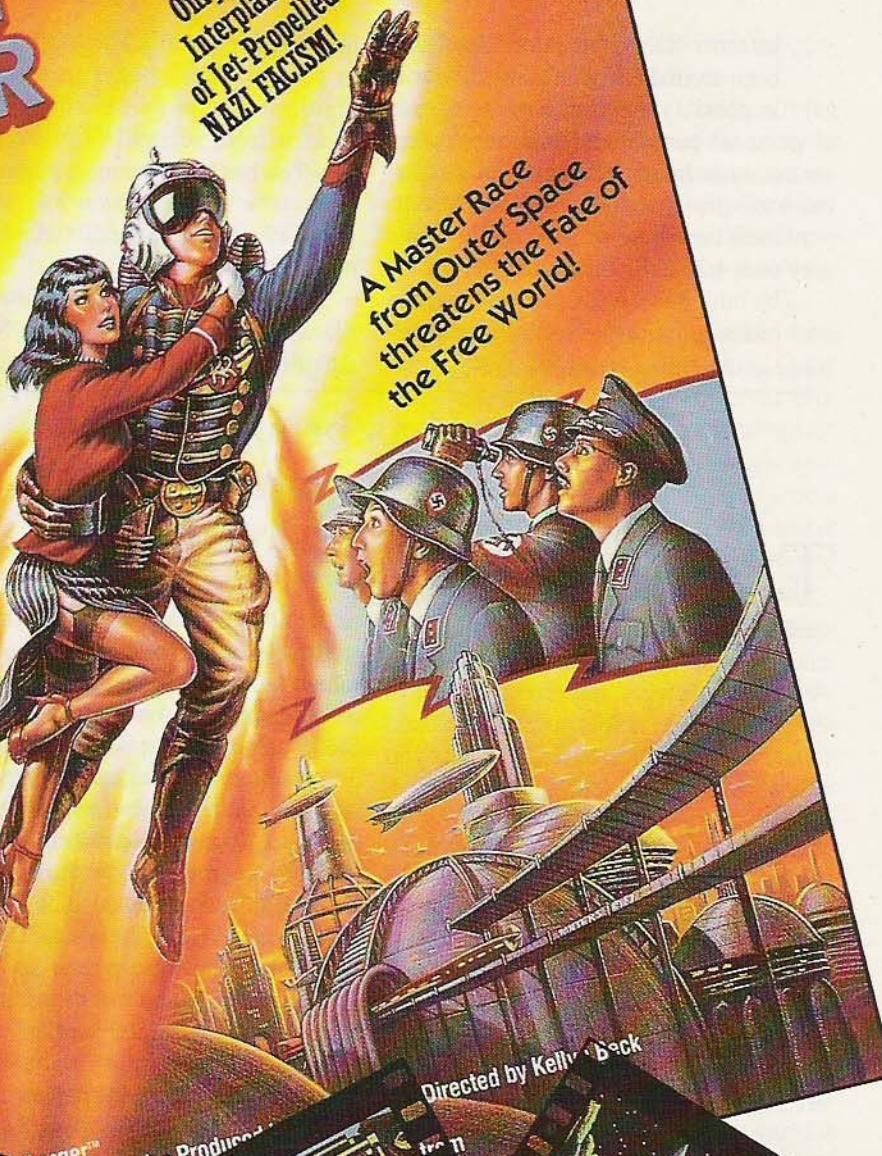
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Desk-top Video and the Amiga

by David Thompson

The term "Desk-top Publishing" has been around for quite some time and is possibly the fastest growing use of personal computers. Desk-top Video, on the other hand, has remained the domain of professionals, and has yet to penetrate the home market in the same way desk-top publishing has.

The main reason for this was that the cost of the equipment required was prohibitive. And then came the Amiga . . .

not only for use in DTV, but for artwork in general. Much better to start with a digitized picture and modify it than to paint it from scratch! *Digi-View* from NewTek has been the most popular digitizer, now up to Version 3.0, and supports all of the Amiga's functions and capabilities.

All you need is *Digi-View*, and a black and white video camera. NewTek supplies a colour wheel which you place

fast-moving pictures. The frame grabber stores the image in its own RAM and this is transferred to the Amiga via its parallel port or expansion port.

LIVE! by A-Squared is probably the best low-cost frame grabber, but no PAL versions have surfaced in this country as yet. *Perfect Vision* by Sunrise Industries is snapping at its heels and is cheaper but has the disadvantage of only being able to digitize in black and white, with colour images being constructed using a colour wheel, a la *Digi-View*.

Progressive Peripherals market a top-quality frame grabber which supports all graphics modes and has very powerful image-processing software. A bit steep at US\$599.99 though. Again, as far as I know, there are no Australian manufacturers producing frame-grabbers but Ausgen has one under development . . . stay tuned.

The Amiga has brought DTV to the home video professional.

TWith it, you can have a broadcast-quality character generator for titling or manipulating video frames in real time. A unique and very important feature of the Amiga is its ability to be Genlocked to an external video source. This lets you overlay your Amiga's graphics onto video with spectacular results.

There is a very wide range of both hardware and software available, but most of this comes from the US and much of that is built to the American NTSC standard, incompatible with the Australian and European PAL system. This situation is getting much better as the European market grows and local manufacturers start developing hardware.

We have been a little unfortunate in that the landed price of hardware has always been much higher than advertised in US magazines due mainly to importers and retailers taking their share of the profits before it hits the shelves, but as you will see . . . these days will soon be over.

Digitizers

Video digitizers are an excellent tool

in front of the camera to take three successive pictures, one red, one green and one blue. The software then reassembles the images into one image in the full 4096 colours.

A colour camera can be used if you already have one, but in the PAL versions of *Digi-View*, interference lines tend to degrade the picture quality. A VCR can also be used if it has superstill freeze frame. The *Digi-View* takes time to digitize the image so just like photography in the old days, the image must remain absolutely still!

Frame grabbers

Frame grabbers don't have this problem as they (usually) digitize (grab) the picture in one frame time (1/25 sec) or a non-interlaced picture in one field time (1/50 sec).

Most frame grabbers digitize the picture in colour inside this time, but some take the easy way out and digitize red, green, and blue information in successive frames which can be a problem with

Genlocks

One of the most amazing features of the Amiga is the ability for it to be Genlocked to external signals. For the uninitiated, all this means is that the pictures coming out of the Amiga can be aligned so that they can be superimposed without one drifting in a random fashion when the signals are combined. There is, I admit, a lot more to it than that, but that is beyond the scope of this introduction.

With a Genlock, you can overlay titles, pictures and animation over video, just like the real thing. You can make your home movies look really sharp with rolling titles and subtitles.

Animation? Remember the animated duck that used to sigh and walk across the bottom of the screen whenever one of our cricketers got out for a duck a few

years ago? Not a problem. If you watched the Olympics you must have noted the lovely overlays that popped up onto the screen to show the judges' scores and the like, well you may never get the contract to do the 1992 Olympics but you could roll your own.

Genlocks usually have at least two video connectors for video in and video out. The signal you want to have as your background is fed into the genlock and the resultant overlay is made available for viewing or recording.

Fortunately there are at least two Australian Genlocks available. First on the scene was Neriki with their *Image Master*. It is aimed at the high-end users such as video production houses and has features needed for such use but way beyond the need of the amateur video fanatic. Its intended use is reflected in its high price tag of over \$2500.

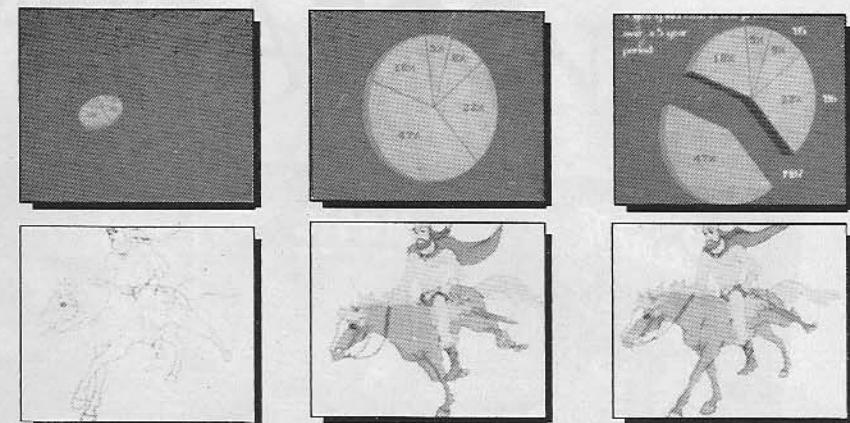
Neriki is joined at that end of the market by the Magni Systems Genlock system from the US. It is a two card system that plugs into a B2000 and has true broadcast quality, a million features and a matching price of around \$2600 ex tax.

Coming to the rescue of the home video user are the two Ausgen Genlocks reviewed in this issue. Priced at an amazing \$395 and \$595, they both represent amazing value for money and are the only real choice for the budget conscious. The only snag here is that neither works with anything but an Amiga 1000, but according to Ausgen, a fully compatible Genlock will be out Real Soon Now.

The Neriki Genlocks are sold by Neriki Computer Graphics who can be contacted on (02) 957 4778, the Magni Systems genlock is sold through Magnatech (427 0666) and Ausgen genlocks can be found on (02) 639-6686.

Character generators

The first step in tarting up your home vides is to title it by means of a character generator (CG) - a device that creates text and places it in the form of titling onto video. You can turn your Amiga into a character generator with a number of pro-



grams.

*TV*TEXT* by the Zuma Group was one of the first generators. It lets you manipulate characters brought in by way of standard IFF fonts. Other character generators include PVS Publishing's *Pro Video CGI* and *Pro Video Plus*.

Aegis Video Titler, *TV*SHOW* by Zuma, *DeluxeVideo 1.2*, *Deluxe Photo Lab* and most notably *Deluxe Productions*, all by Electronic Arts are just what you need to create spectacular video effects. To get the most out of these, you should consider investing in some Genlock equipment so that the above images are overlaid on your video, not just shoved in between successive takes.

Indicative of greater things to come is

Invision by Elan Design, a program which is used in conjunction with the *LIVE!* frame grabber. It can process video coming into the frame grabber in real-time to create just about any effect imaginable.

Mind you, you can use the output of any Amiga program as material for recording, the only problem is extracting it from the machine. The A500 and A2000 have only mono-

chrome video outputs and the B2000, no video out at all.

A simple solution to this is to buy a video adapter that plugs into the RGB port of the Amiga and converts it to composite video. Forget about RF adapters, only misguided (or very poor) people use TVs as monitors and the output of these adapters is very poor. Amiga 1000 owners enjoy colour composite video built-in to their machines so no adapters are necessary.

How the final product will look is of course, up to you. The Amiga and its software give you the ability to create masterpieces, all you have to do is supply the instructions. ■

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The first product of its kind to provide multi-coloured graphics and borders. Any graphic image can be created with 32 of 4,096 colour possibilities. Fully compatible with DeLuxe Paint II and DeLuxe Library art disk.

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DeLuxe PhotoLab (not shown)

Designed for serious artists who want more colours, larger canvases, greater graphic-mode flexibility and powerful colour manipulation utilities. Perfect for enhancing digitised images, moving elements between graphic modes and printing giant posters. The perfect companion for DeLuxe Paint II.

Supports all of the Amiga's graphics modes including Hold and Modify (for 4,096 colours) and Extra HalfBrite (for 64 colours). Painting size is restricted only by the amount of extended memory, allowing paintings as much as 20 times larger than a normal screen.

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Microillusion's Photon Video Cel Animator

By Dennis Nicholson

WARNING: The purchase of *Cel Animator* is bound to be the first step in what will begin the total depletion of your bank account!

This program, released by Microillusions, is about to do for animation production what the invention of the wheel has done for mankind.

At last a computer software program allows you to accurately synchronize sound/voice to computer generated images. Even Walt Disney Productions, with all their technological animation breakthroughs over the years, has not been able to do that! In fact, none of the professional animation software is capable of doing what *Cel Animator* can do!

Having been involved in film and computer animation, both professionally and domestically, over the past fifteen years, my prayers have finally been answered! "Only The Amiga Makes It Possible" has never been a more true statement.

Cel Animator has been written by James Donaldson with additional suggestions and ideas added by Heidi Turnipseed.

Heidi is a professional animator and also the author of the manual. Her career began at Walt Disney Productions in 1972 where she has worked on such films as *The Rescuers*, *Pete's Dragon* and later, *An American Tail* for Don Bluth Productions. Heidi's understanding of both the film and computer animation techniques has made her an excellent choice to aid in the creation of *Cel Animator*.

The warning given at the beginning of this article is not too far from the truth, especially if you want to use this program to its fullest potential. A quick check of the basic system requirements listed in the manual gives you some idea of what you will need:

"From two megabytes to two and one-half megabytes recommended for animation testing in more than two colours, and/or full colour animation in Low and Medium resolutions. Full memory expansion up to eight or nine megabytes recommended for full colour playback of completed animation sequences in HAM Interlace or High resolutions. Two disk drives recommended, also a hard-drive. Sound digitizer and software required. A black and white video camera, video digitizer and associated software is required for saving Pencil test drawings."

sion up to eight or nine megabytes recommended for full colour playback of completed animation sequences in HAM Interlace or High resolutions. Two disk drives recommended, also a hard-drive. Sound digitizer and software required. A black and white video camera, video digitizer and associated software is required for saving Pencil test drawings."

Before I scare you too much, let me say this program will run on a 512k system without any problems, but if you want to use it to its best ability you need lots of memory. *Cel Animator* is PAL compatible. When the program is run it checks to see if your Amiga is using the American NTSC or European PAL video standard and adjusts the screen resolution sizes accordingly.

Cel Animator allows you to use a pre-recorded digitized sound, or voice, and break that sound down into individual frames that can then be easily matched to animation frames. For example, let us assume you have recorded the word "AMIGA" onto disk with a sound digitizer. The word is made up of three syllables, "A-MI-GA," (pronounced "A-MEE-GA").

To draw an animated character saying the word will require three different mouth "shapes", one for "A", one for "MEE" and one for "GA". Without knowing the exact length (in frames) of the word, it is

hit and miss as to how many drawn pictures will be needed to match the animated mouths to the sound. With *Cel Animator* you simply load the pre-recorded sound into RAM and "break down" the word into its syllables. As you "step" through the word, "A-MEE-GA", *Cel Animator* numbers each sound frame consecutively.

It also allows you to type in up to three letters in each sound frame to help identify at what frame number each syllable begins. So, if the "A" sound starts at frame-one and lasts for three frames you will then hear the "MEE" sound begin on frame number four where you would type in "MEE" to let you know that it begins on that particular frame. Continuing to step through the sound you will hear the "GA" sound begin on frame seven and last for four frames. *Cel Animator* then stores the information as a text file called an Exposure Sheet.

An exposure sheet is used by professional animators and contains all the relevant animation details. This information can then be printed out to give the animator all the necessary details required when it is time to put the final colour version of the animation together. *Cel Animator's* exposure sheet is laid out to industry standard format, and our "A-MEE-GA" example would print out as follows:

Action:	Fr No:	Dia:	Exp:	3	2	1	Camera
CloseUp Face	1	A	1				25mm at f/5.6
" "	2	A	1				" "
" "	3	A	1				" "
" "	4	MEE	1				" "
" "	5	MEE	1				" "
" "	6	MEE	1				" "
" "	7	GA	1				" "
" "	8	GA	1				" "
" "	9	GA	1				" "
" "	10	GA	1				" "

The Exp: heading tells you that you will expose each picture frame once for each sound frame. Therefore it is a very simple matter to work out that you will need three "A" mouth drawings, three "MEE" drawings and four "GA" images. Once your images are drawn it is then possible to run both sound and picture in perfect synchronization.

Cel Animator A detailed look

Cel Animator is the third in Microillusion's "Photon Video" series to be released for the Amiga. The first was *Photon Paint*, the second was the *Transport Controller* (more about that later). *Cel Animator* has been advertising for well over twelve months. I thought it was going to be another vapourware product until a software supplier in Los Angeles told me that it had finally arrived. \$99.95 U.S. is an amazingly small price to pay for a program that is going to revolutionize the animation industry!

I have heard that Walt Disney Productions has installed Amigas in their animation departments just because of what *Cel Animator* will do. They won't be doing "finished" work on the machines, as the output quality is nowhere near the required level, but the Amiga combined with *Cel Animator* is simply brilliant for doing animation tests!

Cel Animator is a three-disk package, one program disk supplied with two demonstration disks. The program itself is only 92.5k in size and is very easy to get up and going. Clicking on the *Cel Animator* icon brings up the "Set Graphics Mode" requester. This allows you to choose which resolution you would like to operate in. The default PAL format options are:

Lo-Res 320 x 256 (Overscan 352 x 296)
 Med-Res 640 x 256 (Overscan 704 x 296)
 Interlace 320 x 512 (Overscan 352 x 592)
 Hi-Res 640 x 512 (Overscan 704 x 592)
 HAM 320 x 256 (Overscan 352 x 296)
 HAM Interlace 320 x 512 (Overscan 352 x 592)

After selecting a resolution you can choose the number of colours to work with, 2-4-8-16-32 or HAM (Hold-And-

Modify) which allows you to use all 4,096 colours on screen at once. When the Set Graphics Mode requester comes up it also lists the maximum number of frames you will be able to work with. Remember that this depends on the amount of memory your Amiga has, and is also related to the resolution and number of screen colours you choose. The Amiga 2000 I am now using has three megabytes available in memory, so as a comparison, the Frames/Memory list will give you an idea of the number of picture frames you will be able to use.

image of several of the previous frames. This gives you a visual indication of just how smooth your frames are running together.

Once a successful Pencil Test has been done, with synchronized sound if desired, it is up to you to convert the two-colour animation into the final colour frames using any Amiga paint program. (Naturally, Microillusions recommend *Photon Paint*).

Your final colour frames can be saved as an ANIM file, (a compression routine that allows only the pixel differences be-

Frames/Memory List

	3 Megs		512 K		
Resolution:	32 col:	o/scan on:	2 col:	32 col:	2 col:
Lo-Res	51	39	261	2	24
Med-Res	30 (16col)	23 (16col)	130	0	10
Interlace	30	23	130	0	10
Hi-Res	13 16(col)	10 (16col)	63	0	3
HAM	41(4096)	32(4096)	41	1(4096)	1(4096)
HAM Interlace	19 (4096)	14 (4096)	19	0	0

If I plan to create a Lo-Res animation, in overscan, I will only have 39 frames available, and at 25 picture frames used to every one second of screen time, that only gives me 1.5 seconds of animation time available! The above listing does not take into account the addition of sound files, which will use even more memory.

But it is not as bad as it seems. Where *Cel Animator* comes into its own is with Pencil Testing. Very few, if any, animators will produce full colour animation without first Pencil Testing the moves and actions. That is, they do a black and white test animation to see if all the elements in their creation are going to work correctly before proceeding with the full-blown colour work. If I went ahead and created a Lo-Res Pencil Test, with a three megabyte machine, I would have 261 frames available, that equals 10.4 seconds of animation time. A unique feature of the Pencil Test mode is "ghosting". When a two-colour test is run what you see on screen at any given time is the *Current Frame* plus a ghosted

tween picture frames to be saved, so reducing the size of large animations). If your computer has enough memory you can play the ANIM file back at a predetermined frame rate of up to twenty five frames per second. One interesting ability of *Cel Animator* is to import ANIM files and Decompress them back into standard IFF picture files which you may want to alter, or edit, then re-save back into an ANIM file.

I mentioned at the beginning of this review that *Cel Animator* is the third in the *Photon Video* series, the *Transport Controller* being the second release. This software package, combined with *Cel Animator*, gets you into the professional animation area, at a price!

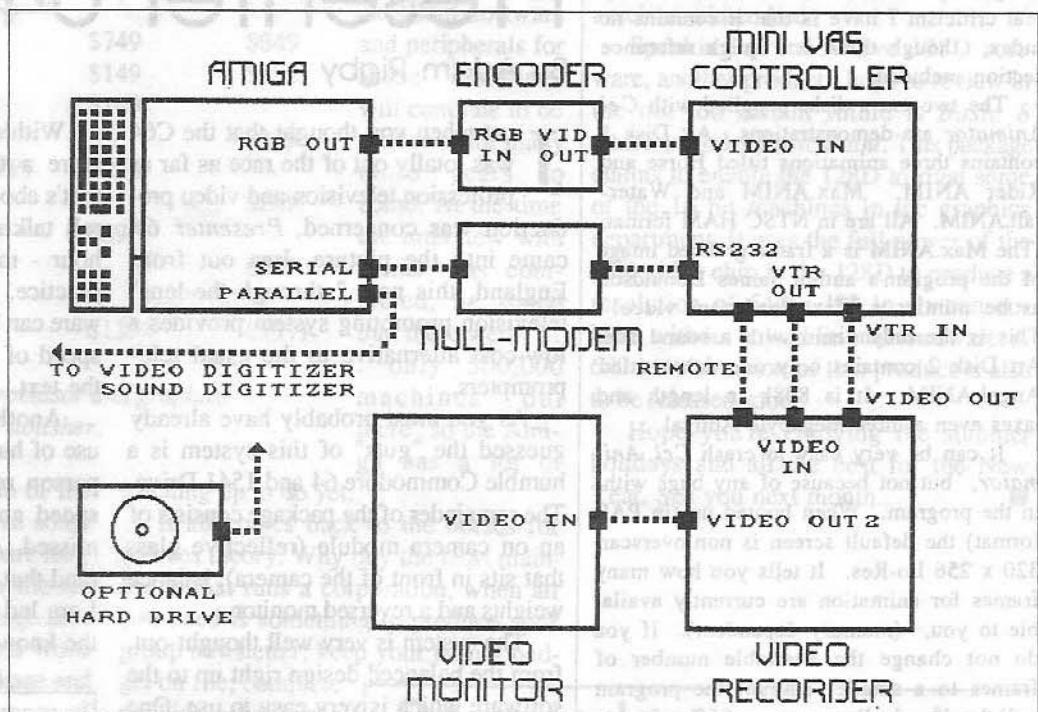
First you will need a video tape recorder that is capable of single-frame recording. One such machine is the Sony VO-5850, a 3/4 inch U-Matic recorder. Its approximate cost in Australia is \$9,000.00. An Encoder will be required to convert the computer's RGB output to analog so the video recorder can accept the signal. Encoders can be purchased for

\$1,500 to \$4,000. Next a Null-Modem is connected between the computer and a Transport Controller. This allows the computer to communicate with the video recorder via Microillusion's Transport Controller software. So what is a Transport Controller?

A piece of electronic hardware is required for the computer to "talk" to the video recorder. One such piece of hardware is manufactured by Lyon Lamb Video Animation Systems in America. Called the Mini Vas (Mini Video Animation System). The Mini Vas is an animation controller specifically designed to control precise single frame recording and frame grabbing (capture) from PC based computer graphic systems to a videotape recorder. Price of a Mini Vas in Australia is around \$3,500.00.

Putting it more simply, *Cel Animator* is best used on the Amiga to Pencil Test your animation and synchronize it with any sound you may want to use. The final colour animation is then created via another paint program such as *Deluxe Paint II* by Electronic Arts, or *Photon Paint*. The completed colour animation can be saved as an ANIM file using *Cel Animator*, or stored as IFF pictures on a hard drive. The Transport Controller software is then used to control the Mini Vas as it outputs each animation frame from the Amiga to the video recorder. Once you set up the Transport software, i.e; telling it how many frames to transfer to video etc, the process is totally automatic, and your entire animation will be transferred to the recorder one frame at a time.

The *Cel Animator* program disk contains a demonstration of how the Transport Controller software works. You must first tell the software what animation controller hardware you are using. There are three examples on the disk, the Lyon Lamb Mini Vas, the Pico System V2.13 and the Videomania V-Lan V2.01. You



Computer Animation Setup

simply click on the appropriate controller and its "transport.library" is installed into the program. Next you tell the software what brand of video recorder you are using. There are thirteen examples contained within the demo.

Ampex VPR3
 Ampex VPR80
 JVC CR-850U series
 Sony V05850
 Sony BVU8xx without Time Code
 Sony BVU8xx with Time Code
 Sony BVU950 without Time Code
 Sony BVU950 with Time Code
 Sony BVW40
 Sony BVW75
 Sony BVH2000 series
 Sony BVH2500
 Sony BVH3000

These are all professional format video recorders. At present no domestic (home) recorders are supported. This will change as better domestic machines become available, such as the Super VHS series of recorders.

Micro illusion's software log of VCRs

the AMI 128D and Amiga 1000

and peripherals for

the Amiga 1000

and the Amiga 2000

and the Amiga 4000

and the Amiga 4000B

and the Amiga 4000T

and the Amiga 4000N

and the Amiga 4000NT

and the Amiga 4000NTX

and the Amiga 4000NX

and the Amiga 4000TX

and the Amiga 4000NX

easy to get somewhat confused about things if you don't concentrate. The only real criticism I have is that it contains no index, though there is a quick reference section included.

The two extra disks supplied with *Cel Animator* are demonstrations. Art Disk 1 contains three animations titled Horse and Rider ANIM, Max.ANIM and Waterfall.ANIM. All are in NTSC HAM format.

The Max.ANIM is a frame-grabbed image of the program's author James Donaldson as he mimics a Max Headroom video. This is the only demo with a sound file. Art Disk 2 contains only one demo titled Angel.ANIM. It is 808k in length and taxes even a three megabyte Amiga!

It can be very easy to crash *Cel Animator*, but not because of any bugs within the program. When booted up (in PAL format) the default screen is non-overscan 320 x 256 Lo-Res. It tells you how many frames for animation are currently available to you, (memory dependent). If you do not change the available number of frames to a smaller amount the program will load and allocate over 95% of your Amiga's remaining memory for the animation bitmaps. This leaves virtually nothing for the inclusion of sound samples or multitasking. If you try, the program will freeze and you will have to re-boot.

As mentioned the program is capable of saving animations as ANIM files, but no Player program is supplied as a separate utility. So if you wish to send finished ANIM animations to friends you must use the ShowAnim public domain utility from Aegis Videoscape 3D or Aegis VideoTitler. This utility will not allow you to include any sound with the ANIM files.

Apart from the above criticisms *Cel Animator* is unique, being the first animation program to allow sound frame editing. I'm sure others will follow, but until then this program is worth its weight in animation cels to people who want to test computer animations or pre-digitized drawn images.

Photon Video Cel Animator
by Microillusions Inc.
17408 Chatsworth Street,
Granada Hills, CA 91344, USA.
RRP \$99.95 U.S. ■

Presenter 64

By Adam Rigby

Just when you thought that the C64 was totally out of the race as far as professional television and video production was concerned, *Presenter 64* came into the picture. Just out from England, this new "through-the-lens" television prompting system provides a low-cost alternative to the usual teleprompters.

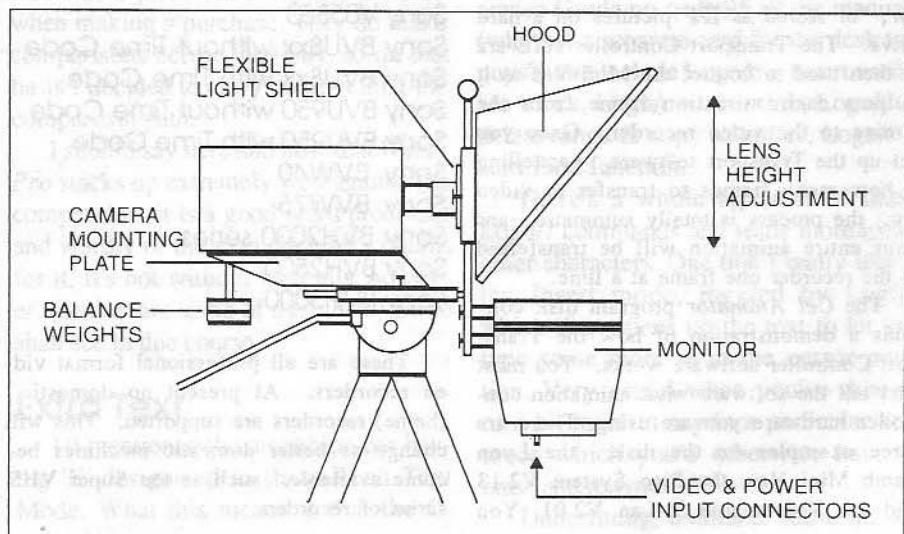
As you most probably have already guessed the "guts" of this system is a humble Commodore 64 and 1541 Drive. The remainder of the package consists of an on-camera module (reflective glass that sits in front of the camera), balance weights and a reversed monitor.

The system is very well thought-out, from the balanced design right up to the software which is very easy to use. One of the nicer features is the ability to download text straight from your IBM or compatible by hooking a printer cable between the two and just printing from the IBM.

The software itself is a fully contained word processor, but I wonder how efficient it would be considering that the maximum number of lines that can fit on the screen at once is seven, and the characters across the screen total twenty.

Within the RAM of the C64 you can store a total of 2000 lines of script, that's about enough to keep Andrew Farrell talking at a good pace for half an hour - mind you, he has had a lot of practice. All the parameters of the software can be changed, everything from the speed of the scrolling to the density of the text.

Another neat implementation is the use of hand controllers so that even the person reading the script can alter the speed and even go back over text he missed. All this for a mere \$7,650.00 (and that is delivered) - very competitive I am led to believe by those who are in the know. ■



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Fantavision - A Moving Experience

by Tony Smith

AN INTERESTING disk popped onto my desk the other day, a preview of a soon to be released program called *Fantavision*.

With an Amiga and this program, you can (with some experience) create graphic movies with smooth animation, which will run for hundreds of possible frames, and it includes loop ability so they can appear to run indefinitely. The possibilities of this program for the amateur advertising executive are endless.

Included in the package are several professionally done demonstrations including an animated dinosaur scene which starts off with an incredible primeval forest scene and eerie chirruping and bird calls. A pterodactyl swoops into view, getting smaller as it goes away. Screeching, it lands on a tree, settling its wings, suddenly another bird (or is it?) glides onto the screen, dips its beak into the waterhole, snatching a fish from the surface it swallows it with a screech. Even the ripple in the water is detailed. A diplodocus is next to appear, most of his body underwater. He grabs a feed of leaves from a primitive tree and swallows it before leaving the scene.

The movie repeats from that point over and over again. While experimenting with 'clone' feature, I extended the feature by several frames, causing the beast to disappear under the water to the noise of a slowed-down cat's meow! Different!

There were a few bugs in the pre-release version including some monumental guru-type crashes when the limits of memory were reached. My Amiga has the 1/2 Meg expansion and I found that although the 'info' screen showed the extra memory as available ram, the pro-

gram did not work properly unless it was disabled. I avoided the problem by transferring the 'nofastmem' onto the disk and running it before the main program was loaded.

Options

The number of options available on *Fantavision* is absolutely stunning. The left hand menu bar contains twenty options including draw, make smaller, make larger, rotate left and right, rotate about a chosen axis, stretch the outlines from anywhere on the outline, insert text, move, copy and many more.

A colour palette consisting of 32 colours with 37 different textures and patterns is available. Top right window contains five options for cloning, stepping, running and sound menus: There are a further ten mode buttons at the bottom right hand side of the screen. Pull-down project menus from the top of the screen offer more options such as load, save and edit movies, backgrounds and sounds.

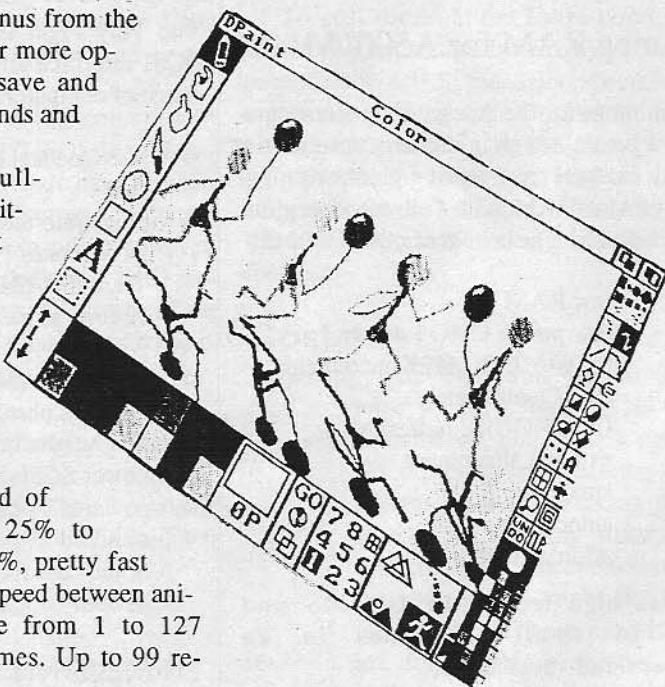
Three more pull-downs take care of editing, options and text handling facilities

peats are possible with the loops being programmable from the same menu.

Be sure to watch out for this program, it certainly looks impressive. As a beginner to the Amiga, *Fantavision* was a real eye-opener, it was easy to operate but I'm sure there were many features I didn't explore. In the hands of a more experienced user the results could be outstanding, as can be seen from the demos.

A good feature was a 'viewer' where a user can choose to just watch the stored movies. We have certainly come a long way since the old 'super eight' (what's a super eight, dad?) Now we can make our own movies and cartoons and watch them without having to put up a screen and we are limited only by our own imagination.

Review copy from Questor (02) 662 7944. RRP \$89.95 Amiga. ■



The AusGEN Genlock - A Preview

The AusGEN Genlock is the first realistically priced broadcast-standard Genlock available in Australia aimed at both the professional and amateur video user.

The extreme price difference between the AusGEN and other Genlocks is not an indication of a similar reduction in picture quality. In fact, it performs at least as well as the best and very expensive Genlocks. The image is very sharp, bright and for a change, the colour is well saturated and vivid unlike the Amiga's own composite video signal.

Further to this, the AusGEN has been designed specifically to genlock to consumer VCRs, unlike some that exhibit poor tracking of a VCR's fluctuations. You may not have taken note that whenever most Genlock manufacturers demonstrate their devices, a camera is invariably used as the signal source. This makes a lovely stable picture but since most owners will be overlaying on prerecorded video tape, the demonstration is misleading.

There are two models to choose from, the first is a basic Genlock which simply overlays the Amiga's graphics onto the incoming video. This Genlock plugs into the RGB connector of the Amiga and has two RCA sockets for Video in and Video

out.

Video out supplies the composite video and overlay, and is usually connected to a VCR for recording. The Video in takes the signal that will become the background, usually from a camera or a domestic VCR. A tracking switch on the rear of the case optimizes the Genlock to cater for poor quality VCRs.

The second model has a number of special features, many of which are unique to the AusGEN. As well as performing the usual overlay function of an Amiga Genlock, this Genlock can limit the overlay to a specific portion of the screen, a technique called masking. Using this feature, titles can roll up the screen, but be only visible through a user-controlled aperture, say, in the bottom quarter of the screen.

This makes the titles appear to vanish a quarter of the way up the screen, thus not obscuring the video. The overlay may be thus limited to any rectangular region any size and position on the screen. The user controls this by the use of four window positioning knobs on the front panel of the Genlock.

Another mode lets you create a window as above, which "looks thru" to either the video or the Amiga's image. The

final mode displays just the Amiga's image or the incoming video. An underlay/overlay switch inverts the overlay action and in conjunction with the masking modes can provide some very unusual effects.

The use of RCA sockets is a pleasant change from the BNC connectors of most Genlocks because, while BNC connectors are considered better than RCA, nearly all new video equipment uses RCA sockets.

The Genlocks derive their power from external plug-packs so as not to drain precious power from the Amiga, letting you connect all your normal hardware, such as external drives and memory expansion without fear of overloading the Amiga's power supply.

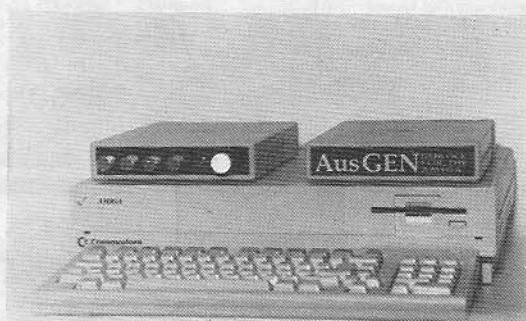
Both Genlocks come in low-profile Amiga beige cases that make an attractive addition to any Amiga system and can be yours from \$395.00 for the basic model to \$595.00 for the fully optioned version.

The current AusGEN Genlocks support only the Amiga 1000 but models that support the Amiga 500 and Amiga 2000 will be available soon.

Review copy supplied by AusGEN
(02) 639-6686.



Example overlay. The border, "AusGEN" and Amiga checkmark are coming from the Amiga and are overlaid on the video.



The two AusGENs side by side

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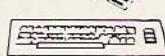
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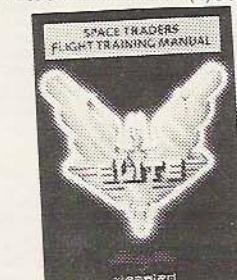
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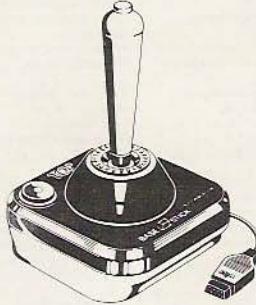
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The 128 Revisited

by Harry Waterworth

In this current era when the Amiga is the king of the Commodore range of home computers, it is easy to overlook the 128D and the many excellent features that this great computer offers. There are not many computers that can offer the user three separate systems within the one computer, yet the 128D does, and in a very smart fashion indeed.

The 128D can run in its native mode using Basic 7 for programming. It can also run in 64 mode using Basic 2, plus of course, it can run in CP/M mode, a versatile machine indeed.

The next questions which could perhaps be asked are these:- Can the Amiga run the thousands of excellent 64 programs, both in the entertainment and productivity areas, that have been developed over the years? No, but the 128D can. Does the Amiga allow you to use CP/M mode and take advantage of the excellent software available in this area? No, but the 128D does.

Added to the above features for the 128D has been the introduction of the "GEOS" range of products, which really is a fourth operating system as opposed to just additional pieces of software. We also now have the 1750 Ram Expander, which at \$260 is a reasonably inexpensive way to finish up with a 640K computer with power to spare.

Graphics

So given all these factors, why has the 128D languished in the shadow of the Amiga? The answer can be summed up in one word; graphics. There is no doubting the fact that the Amiga has the best graphics and colour palette of any home computer in

the world to-day. Therefore, if you're a 64 owner looking to upgrade, with your main aim being focussed on the entertainment side, then the Amiga is the way to go. This also applies to those involved in creating graphics for professional advertising and videos etc.

Productivity

However, if your chief goal is in the productivity sector, but you still want excellent graphics (not quite as good as the Amiga) then it's hard to go past the 128D.

If you're a 64 owner with perhaps hundreds, or in some cases, thousands of dollars invested in existing software, cartridges, additional disk drives etc, then the 128D with the 1750 Ram Expander can give you that extra power and speed you're looking for, without having to lose all your existing valuable programs and peripherals. If you're already a 128D owner then all you really need is the 1750 Ram Expander.

Regular readers of this column will already be aware that "GEOS" and its associated family of software have dedicated programs which support both the mouse and the Ram expander. However, there are many other dedicated 128D programs which make excellent use of the Expander and/or the mouse, and some of these are detailed below:—

In addition to the above software, there are many other Graphic and Desktop Publishing programs which bring out the best in the 128D. Some examples are *Geopublish*; *Advanced Art Studio*; *Page Builder* and *Page Illustrator*; *Timeworks Desktop Publisher* and so the list goes on. Reviews of a number of the above programs will be published in future editions.

The programs previously mentioned are just some of the many excellent productivity packages available specifically for the 128D. From my own experience, many of these are as good as, or in some cases, better than their counterparts which are available for the Amiga. My favourite wordprocessor is still *Superscript 128* and I have yet to see anything on the Amiga which would beat this for speed, ease of use, powerful options built in, and value for dollar.

To best illustrate the above point, a recent comparison ad for *ProWrite* was published in a U.S. magazine specialising in Amiga products. Most of the facilities not available in the other five wordprocessing products used in the comparison were available in the bulk of the 128D programs, and at a fraction of the cost.

Cost

So far, I have not touched on the most sensitive issue of all to most of us, and that is cost. To the 64 owner looking to update, as well as taking the loss of his existing software into consideration, the following cost options might also be considered:- (These examples are for similar programs on both computers).

Word Processors	Databases	Spreadsheets
Geos128	Geofile128	Geocalc 128
Pocketwriter II	Pocketfiler II	Pocketplanner II
Jane 128	Jane 128	Jane 128
Fontmaster 128	N/A	N/A
Fleet System 4	N/A	N/A
Wordwriter 3	Data Manager	Swiftcalc
Superscript 128	Superbase 128	N/A

	128D	Amiga
Computer	\$749	\$849
Superbase (128D and Amiga)	\$149	\$195
Superscript 128 Wordprocessor	\$149	-
Excellence Wordprocessor	-	\$429
Geos 128 plus Geopublish * (DTP)	\$258	-
Pagesetter (DTP)	-	\$249
Advanced Art Studio	\$89	-
Deluxe Paint II	-	\$249
	\$1394	\$1971

* This package includes a word processor and graphics program as well as the Desktop Publisher.

It is acknowledged that some of the Amiga programs above will have some features that its 128D counterpart may not, but this also holds true in the reverse situation. The above package sets you up on each computer with a word processor, database, graphics package and a desktop publisher. With a difference of almost \$600, that represents a saving of about 40%. Ongoing costs are another factor to consider, with Amiga software in both the entertainment and productivity areas being much higher than the 128D software.

Some other interesting facts have come to light in recent U.S. Commodore magazine articles. In the July/Aug '88 edition of *INFO* there was a three page interview with Jay Miner, the "Father of the Amiga". It is a very interesting article and sheds a great deal of light on how Commodore operates in the United States. The main point is told in Miners closing comments:- "... The Amiga is so far behind Macintosh and IBM now... that I think it's almost impossible to recover. . . For the next two or three years, Commodore may be able to stay competitive, but in the long run, they will be forced to come up with a new machine, and it will be hard to stay compatible with the Amiga".

Conversely, sales of the 128D continue, and the world-wide total has now topped the two million mark. Add to this the eight million 64s out there and it's

easy to see why excellent software and peripherals for these machines will continue to be produced for many more years to come. At the time the interview with Miner was completed, he stated that there were "... only 500,000 machines out there", so the Amiga has a lot of catching up to do yet.

It all comes back to the horses for courses theory. Why buy the IBM mainframe that runs a corporation, when all you need is something to produce your group newsletter; keep your family budget on file; complete the kids' school projects, and use for entertainment on those rainy days when you're stuck inside the house with a few hours to kill.

There is a continuing stream of innovative software, cartridges, chips and other associated products currently being produced in the United States especially for the 128D. I am currently compiling a list of these products, together with a brief outline of their uses, the names and addresses of the companies that distribute them, the cost of the items, and how to order them from the States if you can't get them in your

area. This will be published in another article at a later date.

Speaking of innovative 128D software, another product I hope to review in the not too distant future is *Basic 8* which includes *Basic Paint*. This package claims to enable the 128D to rival some of the 16 bit machines in the graphics department. It uses the full power of the 64K video chip in the 128D to produce a resolution of 640 x 192 in sixteen colours without any additional hardware. A 640 x 400 version of this product is also to be released soon.

Hope you're enjoying the summer holidays and all the best for the New Year. See you next month. ■

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WordPro 128/FilePro 128

C128 users have long complained of being ignored by software manufacturers. Of late, we've seen a sudden influx of new software. Geos 128 set the ball rolling. Now, the Better Working software people have a few titles. Eric Holroyd, a devout C128 user himself, examines Wordpro/Filepro 128.

Designed by Spinnaker Software in the USA, the creators are justifiably proud of their creation. According to the sample letter on the master disk which is loaded and printed as part of a tutorial, their product is one of the best word processors available for the Commodore C-128.

Previously for the C-64 (and the copyright notice in the book says 1986), the new C-128 version supports the 1571 drive and its "fast mode" of operation. This is most evident when running the spell checker as there's obviously a fair bit of disk access for the dictionary. Thankfully they used burst mode.

Proportional print

Much is made of the program's proportional print feature and rightly so. I believe this to be a necessity in business documents for maximum neatness, presentation and legibility.

Proportional print means that just as your natural handwriting allows a different amount of space for different letters, so does your C-128 when using *Word-Pro*. If you think about it, the lower case letter 'l' only takes up half the space of a 'w' or 'm' yet many word processors treat them alike. The result is a document which is obviously "computer generated".

Present day users demand Near Letter Quality in their letters and papers and many people already use programs which also give them the proportional print feature. Unless you're lucky enough to have a printer which can be set to produce proportional output (such as the Star NX-1000) then you'd need a program such as

this one to be able to do it via software.

Incidentally, the manual's claim that all other C-64 and C-128 word processors have ignored proportional printing is not quite true. I reviewed *Fontmaster 128* earlier this year and found it to be one of the very best programs I've ever used for any micro computer and it has the proportional feature.

Comparisons

When I first loaded *WordPro 128* I was struck with the functional appearance of the screen and with its remarkable similarity to *Fleet System 4*. The title bar at the top has the same row of letters: X to show you're in Extra text mode, I showing you're in Insert mode, S for Shift Lock or Capital letters mode, L for Line mode and F for Forced Space mode.

I didn't consciously set out to make comparisons between the various C-128 word processing programs, then I realised that is just what computer users do when making a purchase. They do make comparisons before they buy, so on that basis I decided to carry on travelling the comparison path.

I should say here and now that *Word-Pro* stacks up extremely well against the competition, it is a good word processor and worthy of the manufacturer's claims for it. It's not without its faults, however, (neither are some of the others) as we shall see in due course.

Extra Text

I'd mentioned the menu/title bar having 'X' designated to show Extra Text Mode. What this means is that the C-

128's memory is used to let you have two documents in memory at the same time. Each area may be used completely independently of the other and changes in one will not affect the other.

Obvious uses are for Extra Text Area to hold data for form letters or what *WordPro* calls "Variable Strings". These are a form of macro (Microcomputer Automatic Command Repeat Operations) which are defined very simply by entering Variable String mode and typing the full phrase first, then the equals sign, then whatever you're calling it.

For instance, if I was to write a paper referring to this magazine a number of times by its full title I could simply assign "The Australian Commodore and Amiga Review = ACR" and from then on I'd just recall the Variable String "ACR" for the program to type the full title for me. Neat!

The way Variable Strings and many other commands are used deserve a mention too. The Commodore Logo key is used in conjunction with a command key, in the case just outlined the Variable String is called by pressing Logo/v then typing ACR (Return). Six key strokes as against 42 (count'em).

Other functions are on the Quick Reference Guide on page 95 of the manual (why not a separate card for the desk top guys?) and include Logo/b = insert variable block, Logo/c = clear tab, Logo/d = delete range & copy to buffer, Logo/f = start Find function.

There's a whole alphabet of these Logo/? commands and some more using other characters. One that I really like is the Insert mode, toggled by Logo/i which then opens up the text to let you type some more in at the cursor position. Very useful when you've thought of a bit more to say in a particular sentence which you'd otherwise have to erase and rewrite.

Underlining, boldface, subscript, su-



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perscripts etc are all called with this type of command but I couldn't find one to do what *Fontmaster* calls "gobble" which is really quite descriptive as it does just that. It gobbles unwanted text from the right of the cursor position to let you rewrite something.

On-screen help

Although I complained of the lack of a separate Quick Reference Card I was quite pleased with the on-screen help feature which the makers would probably say does away with the need for a separate card.

The help key lets you cycle through three screens of command sequences covering most things and is in itself most useful. It's just that I personally would like to have a card with all the commands (such as the one with early versions of *Easy Script*) as I find it easier to work from that than help screens.

There are some really neat features in *WordPro* like the one that lets you Reformat a Paragraph. Cursor to the start of the paragraph, press Logo/r (Return) and *WordPro* removes all the unwanted spaces you've typed in your hurry to meet the deadline and makes your paragraph neat again. Words won't be broken up by this as all word structure is maintained.

In the unlikely event of a crash, you have a choice of a Warm Start or a Cold Start. This is something I've not seen in other word processors so I was immediately intrigued to read about it in the manual.

If the C-128 won't respond to any commands (very unlikely, says the book) you may Warm Start by holding down Run/Stop and pressing Restore. The message "Warm Start" will appear and you may carry on without having lost any of your text. Good one, Spinnaker!

In the even more unlikely event of a complete system crash with *WordPro 128* not responding to Run/Stop and Restore your only option then is to hold down Run/Stop continuously whilst pressing the C-128's Reset key. With R/S still held down you'll hear the disk

drive whirr for a second and the screen will flicker on and off once only.

Don't release R/S until the word MONITOR appears at the top of the screen. Now let R/S go and type G 1300 (Return) and Voila! there's *WordPro* ready to work again.

Unfortunately your text in both Main and Extra areas has gone but you've recovered the program without the wait to reboot. I must say that I tried very, very hard to crash the system and couldn't under any circumstances. Nevertheless, I tried out both the Warm and Cold Starts and they work exactly as described. Another plus for Spinnaker for having the foresight to build in those features "just in case"!

Features

All the features and functions that you'd expect to find in a modern word processing program are there. Cut and Paste, Search and Replace, Automatic word wrap, Headers, Footers, Chaining of documents, Automatic page numbering, Personalized form letters etc etc. There are some extra features as I've already said, one of them being the ability to define Special Characters.

The manual talks first of all about some printers already having the ability to print special characters such as "daggers, pipes, tildes, letters with accents etc", also the ability to overstrike one character with another.

WordPro's manual has some examples of how to define characters you may wish to use yourself such as the "non-equals" sign (an equals sign with a slash through it). You're directed to "find the codes" for the characters you want and then enter them in the manner shown.

I took this to mean "look up the CHR\$ codes in your printer manual" and investigation proved me right. To make the aforementioned non-equals sign you need to send the following codes to the printer: 61+ 8+ 47. 61 prints the normal equals sign, 8 causes the printer to backspace (only if yours supports it) and 61 prints the slash.

If you wanted to do like the "pop" magazines and print something that's crossed out you'd just send the codes 8 & 47 to backspace to the character to be "crossed out" and overprinted with the slash.

You may define up to 10 Special Characters and assign them as "Intext Commands" to the numbers 0 to 9 using the form: 0 = ? where ? is your defined Special Character. Furthermore, these commands may have a "microspace" command added with a comma e.g. 0=61+8+47,10 would make the non-equals sign to be 10 microspaces wide.

File Pro

There's even more in *WordPro* (including its fast, user-customisable 100,000 word spell checker) and I haven't even mentioned *FilePro* yet! Well, it's a straightforward enough database program which allows for easy organizing of a variety of data for all kinds of operations.

Home uses obviously include the ever-popular name/address/phone number list, cataloging of stamp collections, records, compact disks, cassettes etc. Household contents too can be catalogued for insurance policy purposes.

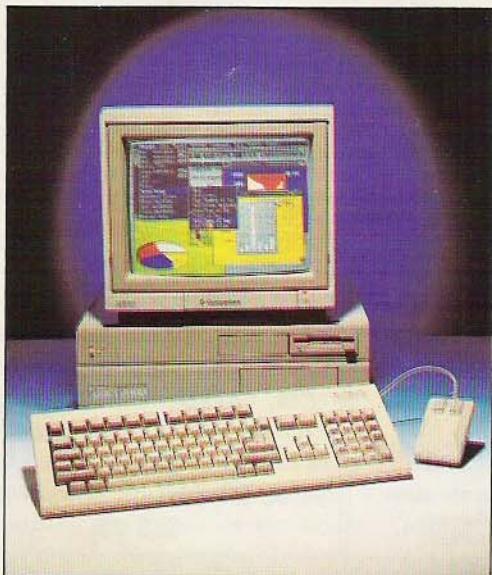
Small businesses would find *FilePro* useful for inventory and stock lists as well as employee and motor vehicle details. Once entered into this user friendly data base the information is ready to be sorted, searched and reported on in a number of ways.

As *FilePro* data can be imported to *WordPro* it means that you can call up information from a database to be used in a letter or document. Nice and handy. Other things that *FilePro* will do for you include individually addresses and prints form letters automatically, prints price tag labels, inventory tags, mailing labels and file folder tags.

Manual

My main gripes with Better Working: *WordPro 128 & FilePro 128* were not with the programs at all. They were

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with the manual! This appears to be a prime example of a programmer writing an instruction manual, which is something that should never be allowed.

I've said before that too many manuals presume some prior knowledge on the user's part and Chapter One of any manual (for my money anyway) should be in very simple language. Experienced users would skip over to Chapter Two but novices would find it a great help.

I had trouble in locating the right printer driver for the NX-10 for instance and the page on "defining a printer driver" said that the programmers had written a special program to do this and it's available for \$5 by writing to them (in the USA of course!).

Updates of printer drivers should be readily available anyway as printer manufacturers are constantly coming out with new models and isn't the prime function of a word processor to get text onto paper?

The manual was printed in too fine a print for my tired eyes too. It was only a little larger than condensed print and although legible enough I needed the bifocals (which I detest!) to read it. This makes peering at the screen difficult and I'm tempted to think that there are other folks like me with less than perfect eyesight.

Another other thing about the manual was that it combined both *WordPro* and *FilePro* into one volume. Admittedly it was spiral bound (lays flat on the desk, so a definite plus) but the index for *WordPro* was somewhere in the middle of the book and I seemed to be constantly thumbing through to look for it.

Maybe I should use a write protect tab on a page corner as a locator? Better yet if Spinnaker were to redo the manual in bigger print, in two sections and in easier language.

Anyhow, grumbles about the manual apart, it's a fine suite of programs and deserves consideration if you're in the market for this kind of software.

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Family Roots C64 and 128

Although there's a couple of local solutions been found since our last swag of Genealogical letter queries, here's a look at an offering from the USA. Richard Elliott examines this programming tree for good fruit.

TWO LOVES OF MY life are computers and Genealogy. A couple of years ago I set out on a search to find a family tree program that would make the most of my 64.

After many inquiries a friend discovered an advertisement in a USA magazine that promised to be THE Lineage program, so I wrote away for more information and a couple of weeks later a letter came back with examples of what the program could do. *Family Roots* was written by a genealogist and did more than I ever imagined, so the program was ordered. I've never regretted it!

Two program disks, Instruction and Reference Manual come with the package. The first program disk contains the main programs menu

- A) EDIT (ENTRY OF DATA)
- B) FREEFORMS (DESCENDANTS AND PEDIGREE CHARTS)
- C) STRUCTURES (TRADITIONAL CHARTS)
- D) GROUPS (LDS AND NARROW GROUP SHEETS)
- E) PERSONS (INDIVIDUALS SHEET)
- F) LISTS (INDEX OF NAMES)

The second programs disk contains the Auxiliary programs menu

- A) SEARCH (EXAMINES DATA IN RECORDS)
- B) WORDS (A SIMPLE WORD PROCESSOR)
- C) EMPTIES (SHOWS RECORDS NOT YET USED)

- D) WHAT (TELLS WHATS ON PARTICULAR DISKS)
- E) MANAGER (MASTER CONFIGURE CONTROL)
- F) CREATE (MAKES EMPTY DATA DISKS)
- G) ADDRESS (MAKES ADDRESS LISTS)
- H) RENUMBER (MOVES RECORDS ON DATA DISKS)
- I) READER (PUTS SAVED LIST INTO MEMORY)

The 200 page manual comes nicely presented in an A4 ring binder which makes it easy to sit kept open on your desk or to remove particular pages that you are interested in. The manual itself is exhaustive, covering every program and utility found on both disks. Individual parameters are found in all the programs so you can tailor *Family Roots* to suit your every wish and the manual gives examples of what happens when each parameter is altered.

Panic not! You don't have to read the whole manual to get *Family Roots* up and running but it is strongly suggested you read sections Getting Started and Edit first. You can learn about the other programs later.

Getting started

One disk drive with your 64 is required but the program can support up to four drives and a printer. All sorts of printers are supported but just in case yours isn't there, a "do my own setup" is

available on Manager (the master control).

The manual instructs that first thing you do is make back ups of the program diskettes. These disks are not copy protected and a simple disk copy program resides on the Auxiliary disk so that if you didn't have a copier to back up your originals you now have one!

Are we finally seeing a break in the copy protection and copiers chain? Quintept Inc. does not copy protect its programs because protection costs money, programs come out that will copy anything and they want you to have access to the files so that you can have a tinker around to better suit your hardware and needs. They rely on your honour and integrity on copyright matters. Thank you, we are all not pirates!

Load Manager from the Auxiliary Programs disk to set your hardware file. It is usually preset to operate with one drive and an Epson printer. Alter this if you have to, then change the screen display if you wish and then don't forget to save the configuration file that you have generated by setting manager to both program disks so that next time you boot up it knows your hardware.

Exit from manager with the Auxiliary program disk in the drive and load in Create. This will make a blank data disk for you. Make at least two now so you can keep a blank one always. Keeping a blank will enable you to use a copier on it and this will produce another blank much faster than the create utility.

After you have used Create insert the Main programs disk and load in Edit. This enters all the data for the person. Information is stored in two parts, one for the person's name and the other for their information. Each person can have up to four components in their name (surname,

given names, married name and title).

The best thing to do is to give every name a record number first with the Edit names selection. Just follow the on screen prompts. There is no limit on how many people can be stored with *Family Roots*. Around 555 peoples' records can be stored per data diskette and when entering records up to 254 characters can be entered per person. Even these settings can be adjusted through Manager.

When entering records Edit asks you for everyone Born on, Born at, Death date or Living, Died/Living at, Father, Mother, Number of marriages, Number of children and Number of notes. For each marriage, Spouse Married on, Married at and Marital Status. For each child and note Child # and Note #.

Extra fields can be added such as sex, christening date, occupation, place of burial and special I.D. etc. Data entered can be updated anytime.

You may be thinking that 254 characters per person is not enough space to store a person's information, but bear in mind when Edit asks for that person's child or spouse name etc. all you do is type in that person's record number, not their whole name. This is a great time and space saver. 254 characters is usually more than enough space.

Edit also does complementing when entering records - for example, myself, my wife's marriage field would automatically be filled in with date and place of marriage etc. Edit also asks you when it's complementing if each of your children live with you.

Now that the hard work has been done let your 64 take over. Other goodies reside on the Main programs disk letting you print various charts.

Freeforms generates two charts, one for ancestors and the other descendants. It is good for computer generation.

Structures prints out two more ancestor charts. These are more the traditional type of chart. Four or five generation pedigree charts and a squashed chart

which prints all the info on one page if possible. **Persons** outputs to screen or printer all your data that you have on that person.

Groups prints out two types of sheets. One is the Mormon (LDS) format and you need a wide printer to use this. The other is the narrow group sheet and is less structured than the Mormon format. You can select what is to be included on the sheet.

Lists gives you a numeric, alphabetic and similar sounding names index. You can have all the names from one data disk or have all the names from all the data disks or even names from any disk that are similar sounding.

On the Auxiliary programs disk a number of utilities reside. These programs don't talk to each other like the ones on the main disk do, but they are very useful.

Ever tried to test a theory out on your family without the use of a computer? Very difficult, but with the **Search** utility it's a breeze!

You can search for dates any way you wish - eg. all who died or were born in a certain year, search for people who married between any two years, search for any empty fields and search for anyone who had x amount of children.

Words is a simple word processor which lets you store a couple of pages of historical notes per person. This is mainly designed for people who haven't got a word processor yet and it is another thoughtful utility from Quinsept. Files generated by Words can be used by any other word processor.

Renumber lets you reassign record numbers for people on your data disks. **Address** lets you make a list for living relatives from your data disk and then saves it to disk or dumps it to your printer for labels.

Reader will put a list of names saved to disk from Lists back into the computers memory. **Empties** shows how many records that have not been used yet on data disks.

Manager is the master controls as mentioned earlier and lets you permanently configure your hardware and all your program parameters. This saves you from setting up each time you boot. You always have the option to change parameters each time you are in any program and of course you can alter them permanently again by calling on Manager.

The parameters allow you to print your charts in various ways. Margins can be set, headers can be asked for, surnames can be used first and notes can be suppressed etc. Ideal if you are planning to write a book.

Family Roots is great software and is updated now and again for a few dollars each time. You are always notified by letter, if you are a registered owner, each time there is an update. No complaints about the program and as there have been many versions all the bugs are now out.

Tree Charts is a separate program available that uses *Family Roots* data which enables you to print out a graphical representation of your family tree. You can appreciate a program like this if you ever tried to draw one yourself!

A parameter in **Tree Charts** lets you PRINT to disk. If you don't have a printer you can print your charts on disk and then get someone to print it out for you. This facility is also handy for modem transfers and sequential file dump programs which print out the charts O.K.

128 users don't despair, as a version made especially to suit your machine was released in July 1988. It makes use of the 128's memory and is compiled to make faster program operation and has a few extras than the 64. No news yet on an Amiga version but by the way Amigas are selling we could hear something soon.

Whether you're a serious researcher or a hobbyist, *Family Roots* is all you need. For more information contact: Quinsept inc. P.O. Box 216, Lexington MA 02173, USA. Don't forget to ask for a sample and a list of its Australian Distributor(s). ■



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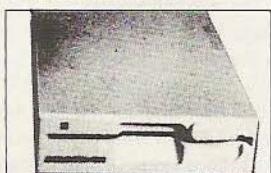


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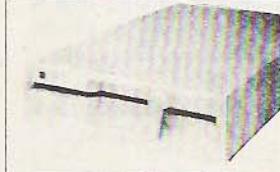
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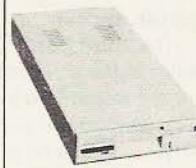
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Super Graphix Gold by Xetec

We always recommend centronics printers (they make upgrading easier). However, there's a snag. They all need an interface to hook up to your C64/128. Here, Eric Holroyd takes a look at a top of the line unit from the masters of the trade - Xetec.

I'm a longtime user of Xetec products and in fact I bought my current printer interface, the Xetec Super Graphics Senior, two and a half years ago to replace the Cardco +G which I'd got with my first printer. As the Senior has done all I ever thought it would be capable of and then some, I have never regretted this purchase. I liked it so much that I wrote a review of it which was published in the January 87 issue of ACR.

New computer/printer users are probably wondering what an interface is and why should they have to get one. It's because when the engineers at Commodore Business Machines were building their very first microcomputer for mass use, called the PET (Personal Electronic Terminal), they chose not to follow the industry standard of data interchange known as ASCII (pronounced ASS-KEE) but devised their own system which became known as PETSCII or PET-ASCII.

This was all well and good if you were buying their brand of printer, but if you opted for a third party printer you needed to get a device which could translate PETSCII to ASCII so that everything worked out OK. This still applies today.

That's all the early interfaces did - act as translators. Then manufacturers started to add other interesting features to their units until eventually the simple printer interface became a minicomputer in its own right and capable of all kinds of wondrous things.

Printer buffer

The Xetec Super Graphix Senior has an 8K printer buffer which means that 8000 characters are stored in the interface's memory after being sent from the computer to the printer. If the document to be printed was 10K for example, after the first 2000 characters had been printed you'd get control of the computer back whilst the interface's printer buffer happily continued sending the remaining 8000.

A wonderful idea, and you could be typing another letter or whatever without the need to wait for the printer to finish its job.

Now, the Xetec Super Graphix Gold has a 32K buffer which can store 32000 characters for printing! I tested this out on a file of 2200 words which when printed out filled 3.5 pages. Control of the computer was returned to me when the first page was only three-quarters printed!

That's much better than sitting around watching the printer work, waiting for it to finish so that you can get to work again. The buffer was a great help when printing *Doodle* and *Koala* pictures too.

Printer dump

Some printer interfaces began to offer a printer dump (it means sending the screen to the printer on command). Some offered a text-only dump, others offered a high resolution picture printout. Xetec Super Graphix Senior and now the new Super Graphix Gold have both but the Gold excels in that it can dump in 16 sizes and in four shades.

It also has the options of inverse (negative) printouts and all can be done in a single or double pass. If you're using the C-128 in its native mode you can even load a screen dump to computer memory from interface memory. This one defines the C-128's Logo and Control keys as "hot keys" whereby all you do is press them simultaneously to dump the screen to the printer.

Fonts

Back to interface development. Further enhancements came along in the form of "down-loadable" fonts or typefaces. This simply meant that you selected from a directory of fonts on disk and fed your choice into the interface to be stored there and used at will.

The Super Graphix Senior let you download two fonts, the new Gold unit lets you download four plus it has a further four already built-in giving you eight fonts to choose from, all of which may be italicized, underlined, printed in boldface, in double height, expanded, and sub- or super-scripted.

If that's not enough there are also nine pitches (or print widths) available. Proportional printing too, is available via the Gold interface. (See the review on *Better Working:WordPro 128* in this issue for more details on what proportional printing is).

The four built-in fonts are NLQ, Helvetica, Broadway, and Script. Fonts on disk include

Bauhaus, Block, Bubble, Burgundy, Busorama, Celtic, Freehand, Futura, Goodtype, Italic, Manhattan, News, Old English, Pierrot, Print, Shadow, Stop, Tech, and Visa. Then there are "special language" fonts like Arabic, Greek, Hebrew, Korean, Russian.

As well as all of these there's a font of "Math" symbols and yet another mixed batch of symbols called "Misc". To finish off the list of fonts there's a set called "Borders" with which you can do fancy edgings around your letters and documents. I was most impressed with this aspect of the Gold interface.

If you want to be really individual there's a program you can use to design your own fonts, then store them on disk for future use. There are separate fontmakers on the disk for C-64 and C-128 too. I've played around with this Font Creator and had lots of fun, not just in designing my own font, but in changing an existing one by adding tails and curly bits here and there.

The Super Graphics Gold may be driven from software (I'm writing this with *Fleet System 4* on the C-128) or direct from basic with simple commands. If you're a basic programmer and like to include printer routines in your code this one makes it easy.

The manual has lots of little examples plus ASCII tables and printer compatibility charts, then there's an appendix of how to set the Gold up to work with a range of popular word processors and other programs.

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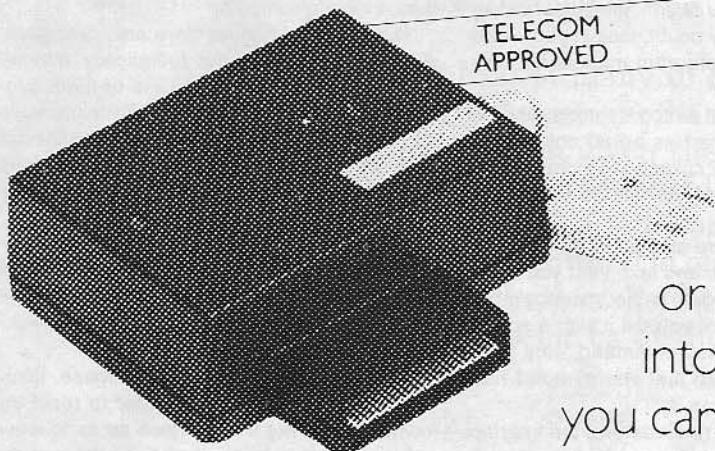
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with its various stored fonts already. On the C-64 these are downloaded in direct mode by simple Basic commands and for the C-128 there's a program on the disk to do the job for you. I must say that it's gratifying to see a peripheral such as this working specifically in the C-128's native mode.

More than that, it works faster in 128 mode if you're using a 1571 drive as it's an intelligent device, capable of recognizing different drives. The 1571 can send data in "burst mode" which is much faster than normal serial transfer.

With the C-128/1571 setup then, the computer outputs in burst mode to the interface and again from there to the printer via a special routine written by Xetec programmers, Commodore having provided the burst-output capability but not the code to implement it.

What all this means is that data gets to the printer faster, and when you add the convenience of the printer buffer you get a considerable time-saving all round. Incidentally, the manual includes details of burst mode for programmers to use and there's a "burst driver" on the disk for use when writing for the C-128/128D. It's relocatable ML code and I could imagine it being very useful to programmers.

Dip switches

Many of the functions performed by the Super Graphix Gold can be controlled either by command or by Dip Switches. DIP is an acronym for Direct Inline Package and the Gold has 16 of these switches. They are "active" in that they are constantly "scanned" by the interface's intelligence to see what's happening.

This means that you may change a switch's setting in mid-operation and will see the result straightaway. Most equipment using dip switches use a "nonactive" type so any setting changes don't show up till the next printout.

A Basic program on the disk called "Switches" senses the settings of the dip switches and any changes you make are noted immediately on screen. There's a listing in the manual which shows how you can use this in your own programs if you wish.

One of the really nice touches here is the Font-enable switch, number A8. The switches are in two banks, A1-A8 and B1-B8, and the manual did a great job in identifying and teaching me what each one was for. It was much easier than I thought it would have been, considering the array of functions on offer.

Anyhow, you can have the interface all set to print in your favourite font (or Near Letter Quality) but leave dip switch A-8 "off" whilst you're doing the "rough draft" of your work. As soon as you're ready for the final print, switch A-8 to "on" and the document will be done in the chosen font.

Most of the dip switch settings are straightforward and you define your printer (from an impressive list) by setting B5, B6, B7 and B8. Once set, these never need to be changed. Similarly with B1 which controls "line-feed". It's either "on" or "off" and you can see right away if you need linefeeds or not by the printout. If in any doubt, look in your word-processor or other program manual for information on linefeeds.

Yet another dip switch controls whether your printer is defined as an 80 column (10 inch) printer or a 132 column (15 inch) unit. Set it "off" for the first and "on" for the wider printer. Easy.

There's a feature in the Gold unit which lets you mix pictures and text. First you download a picture from disk to the interface's buffer. It won't print until you tell it with a special command. After that command, any text (fonts or normal text) that you print will have the picture overlaid on it.

Some software requires that the interface be "locked" to prevent any conflict of commands from either the software or the interface. Other software may require that you set it in "transparent" mode so that commands from the software pass straight through it. The manual explains all of this easily and lists the simple commands necessary to do this on the Gold.

Secondary addresses

Another area that normally takes a fair bit of explaining is well-covered in the manual. This is the subject of "secondary addresses". We've all seen the command Open 1,4 meaning "open a channel to the printer". If the secondary address of 7 is added to this to make "Open 1,4,7" the printer channel is opened and set in "business mode" ie, upper and lower case lettering.

There are 21 secondary addresses available in Super Graphix Gold and all are properly explained. They control such things as: printer dumps, upper case and graphics mode, hex dump (for program debugging), directory channel, and many more including the "lock" and "transparent" modes mentioned above.

The unit itself is very sturdy made, with a

metal case and metal connecting plug for the connection to the printer. It's screwed together and has four rubber feet so that it may sit on the desk nicely, with a "footprint" that is 16cm x 10cm, and the unit is 2 cm deep.

Here's my only complaint - I'd have liked an extra 25-30cm of cable on both the connector to the disk drive and the one to the printer. I just didn't have enough cable to arrange everything neatly.

There's a separate power supply which plugs into the wall socket and you're advised to switch the printer on first, then the interface, then the computer.

Later in the manual there are some hardware modifications that technically minded owners might want to do. One of them suggests getting your 5 volt power for the interface from one of the printer's edge-connector pins. As the manual is printed in USA where they use 120 volts mains power I'd check that holds good with our 240 volt mains supply.

The other mod sends a reset to the interface if the computer is switched off and back on. This already happens to your disk drive automatically by the way and may be useful if applied to the interface.

I think Xetec left it out on purpose, thinking that some users may prefer to reset the computer but not the interface so as to leave all the downloads etc intact. Anyhow, if the mod appeals to you, all the details are there to let you do it.

A dedicated reset facility is built into the interface anyway so you have the option to reset it without interfering with other parts of your system. Two recessed buttons are on the front of the interface labelled "clear" and "reset". The "reset" button performs a "warm start" and does in fact reset the interface but leaves all fonts and downloads intact. All modes and options are reset to their power-up state.

To do a "cold start" press "reset" and "clear" within a second of each other to clear its memory of all fonts, downloads and modes. It's then in the same state as when first turned on, ie "cold" hence the term.

In finishing off I'd have to say that I was perfectly happy with the Xetec Super Graphix Senior interface until this one came along but now I can see me (along with many other satisfied "Senior" users!) trading up to the new one. Unfortunately, Gold's not cheap but nothing really worthwhile ever is, is it?

Review unit furnished by Dastron (02)712-3124 RRP \$249.95.

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Part 2

Amiga BASIC Programming for Pleasure

by Marco Ostini

"Programming for Pleasure?" you gasp, scratching your head after reading the title of this month's Amiga BASIC Tutorial. Yes, that is correct, it is not a misprint, programming can be pleasurable.

After sitting up all night, programming as though it's going out of fashion, you finally finish, and the program WORKS! Then there is a particular feeling of satisfaction that only programmers enjoy.

The loop

One part of programming which is often used is the loop. In Amiga BASIC the loop is created with the FOR, TO and NEXT commands. It is referred to simply as the FOR NEXT loop. The purpose of a FOR NEXT loop is to carry out certain instructions, a certain amount of times.

Boot up Amiga BASIC on your Amiga and try this :

```
for i = 1 to 100  
print i  
next i
```

This program instructs your Amiga to count from one to one hundred.

In the first line the FOR command uses 'i' as a numeric variable and starts its count from one to one hundred. The variable 'i' can be any letter or word. It is prudent though, not to use mile-long names for variables, for they make writing larger programs very time and memory consuming.

In the second line we simply ask the computer to print the variable 'i'. Whatever action we want the computer to perform the specified number of times is placed in between the FOR and NEXT commands.

If for example you would much prefer to see your name printed 100 times down your Amiga's screen, instead of observ-

ing the computer's counting abilities, then simply change the second line to this :

```
print "Marco (or whatever your name  
may be)"
```

In the third line the computer finds the NEXT command. This causes it to loop back to the first line where the FOR command is.

The loop will occur as many times as you specify with the FOR command.

If you're modest and would like your Amiga to print your name only 50 times down the screen then change the first line to this :

```
for i = 1 to 50
```

If you create a loop and forget to put the NEXT command in, then you will receive a 'FOR without NEXT' error message. Delete the last line of the program and then run it. The Amiga will beep (because it's so annoyed that you made a mistake!) as it displays its message. Click on the OK box. An orange box will highlight the line where the computer found the mistake, that is the first line.

Replace the NEXT command in the third line, but

this time only type in the NEXT command without the variable 'i'.

Your program should look like this :

```
for i = 1 to 50  
print "Marco (or whatever your name  
may be)"  
next
```

Now run your program.

Everything operated normally without any mistakes, why? The reason is that there is only one loop to worry about. Your Amiga understood the NEXT command to refer to the variable 'i'. Therefore when writing single loops in is not necessary to specify the variable.

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When writing nested loops you must state the variable. A nested loop is created when one loop is formed within another. Not only is it necessary to state the variables in a nested loop, but the variables themselves must be different.

Clear the computer's memory and type this in:

```
for a = 1 to 10
print "This is the first loop"
for b = 1 to 5
print "this is the second loop"
next b
next a
```

In a nested loop it is necessary that the second loop finish before the first loop, otherwise a 'FOR without NEXT' error will occur.

Another command that is used as part of FOR NEXT loops is STEP. The STEP command changes the increments that the loop counts in. Instead of counting in increments of one only, it is also possible, using the step command, to count in increments of two, five, ten or whatever you desire.

Clear your memory again and enter this program :

```
for q = 0 to 50 step 2
print " Q=";q
next
```

On running this program you may observe that it has caused your Amiga to count two at a time. This is because of the STEP command. To change the increments of count simply change the number following the STEP command.

IF THEN ELSE

Another part of Amiga BASIC programming is the IF THEN ELSE commands. The use of these commands is rather obvious. We use them in conversation every day : "IF you have a problem THEN contact me or ELSE find someone else." Their use in programming is similar. Clear your memory, type in and run this program :

```
cls
input "Which is the Greatest
Microcomputer ";a$
if a$ = "amiga" then Clever else
Dummy
```

```
Clever:
print "I admire intelligent people !"
end
```

```
Dummy:
print "Amigas rule, OK !"
end
```

Very little explanation of this program is needed since it is quite self explanatory, although it should be noted that the END commands are not used for cosmetic value. Without them the program will continue after the Clever: label into the Dummy: label.

It is possible to chop and change parts of an Amiga BASIC program, to store them and if necessary, to retrieve, and use them again.

This is made possible with the use of the three options under the 'Edit' menu. They are Cut, Copy and Paste.

To use Cut or Copy you must first highlight the portion of the program that you would like to Cut or Copy.

Move the mouse pointer on the screen so that it is level and to the left of the label Clever:. Now press the left mouse button and hold it down. While holding the left mouse button down move the pointer directly down to the last line. As you move down the lines above the pointer will turn orange as they are highlighted. When you have reached the last line and highlighted it then let go of the left mouse button. Now go to the menu 'Edit' and choose 'Cut'. You can also cut your highlighted portion by pressing the Amiga key and 'X' together simultaneously. After choosing 'Cut' the highlighted lines will disappear, but they are not lost. To use them again simply position the cursor where you would like the lines to reappear and choose 'Paste' from the 'Edit' menu. It is also possible to paste lines by pressing the Amiga key and 'P' together at the same time.

The 'Copy' option is similar to the 'Cut' option except that it leaves the program intact and only takes a copy of the highlighted lines.

To 'Copy' the highlighted portion simply choose 'Copy' from the 'Edit' menu. The same task can be accomplished by pressing the Amiga key and 'C' simultaneously.

Now that you have Cut the lines from the label Clever: to the end of your previous program, type in the following so that your program looks like this (Don't forget to change the IF line) :

```
cls
input "Which is the Greatest
Microcomputer ";a$
if a$ = "amiga" then
gosub Noise
print "I thoroughly agree !!"
```

```
else
print "I'm sorry, I disagree"
```

```
end if
end
```

```
Noise:
beep
return
```

With Amiga BASIC more than one command may follow a THEN command so that it is not necessary to have labels created especially for the course of action the IF command chooses. The above program proves this. It is necessary however, to use the command END IF to show where the IF's course of action finishes. If the command END IF is missing then a 'IF without END IF' error message will occur.

The BEEP command as used in the above program simply beeps once and flashes the screen.

Next month we will have something to talk about. We will cover a few of the other programming commands and then explore the world of Amiga BASIC speech and sound. ■

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Introduction to the C Programming Language

Part III: Program Structure

by Adrian Sheedy

A topic which may be new to some readers is program structure. Program structure is employed to encourage programming characterized by method and clarity. It stems from the theory that any programming task can be broken up into simpler components. The three basic parts of C are statements, loops, and conditionals (or test). Parts enclosed by braces are called blocks. (The apparent lack of structure in the first instalments of this column were due to me not explaining my material properly to the typesetters - sorry.)

There are a few different ways to structure C programs. Personal preference is usually the deciding factor for the way in which you structure yours. The indentation of braces makes no difference to the compiler; it uses the braces to interpret the instructions. The indentation is so we can easily see how the program is organized. Sometimes there are standards set by a team of programmers for structuring their own software, as is the case where I work. Here is a commonly used method:

```
main() {
    printf(...);
    while ( a = 0 ) {
        printf(...);
    }
}
```

As you can see, the braces are always opened directly after any function is begun, and are closed in the same column as the function began. Everything within the braces is indented, so it is simple to see exactly what is in the braces, and where the function ends. The ease with which you can see these things is the

purpose of indentation. Here is another method (my preferred one):

```
main()
{
    printf(...);
    while ( a = 0 )
    {
        printf(...);
    }
}
```

And another one, a mix of the first two:

```
main()
{
    printf(...);
    while ( a = 0 )
    {
        printf(...);
    }
}
```

Sometimes people mix these types of indentation depending on the function or command which they enclose the instructions for. Like this:

```
main()
{
    printf(...);
    while ( a = 0 ) {
        printf(...);
    }
}
```

This is using one type of indentation for functions such as 'main()', and another for keywords like 'while(...)'.

These are the main types of structure that I have encountered. They all serve to do the same job, some people just under-

stand one a little faster than the others, so they always use that one. In order to decide which one is for you, you need to see a few pages of code written with each type. Then you will know which suits you best.

Efficient C

Getting back on the proverbial track, it is easy to see just how efficient C really is. Take this example:

```
main()
{
    int x,y,z;
    x = 5;
    y = 9;
    z = (y^4)*(y+x)/(2(y-x));
    printf (" z = %d ",z);
}
```

This is a very long-winded way to do things in C. Here is a way to do it in much less space:

```
main()
{
    int x = 5, y = 9;
    printf("z = %d ",(y^4)*(y+x)/(2(y-x)));
}
```

Most programming languages would shudder at the sight of such code, but C handles it routinely. 'printf()' is a function, not a keyword of C. So it has the ability to execute any other function or command which is nested within it, as long as the nested function conforms to the format requirements of 'printf()'. It is easy to see that you can get more done in less time and space with C. Recently one of my friends complained to me about this feature of C, saying that it makes C

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Basic BASIC, a tutorial for beginners - PART 2

by Oben Candemir

Hello again to all the interested readers out there. This is the second part of the on-going BASIC language tutorial for the C64. This month I'll be covering variables, strings, the INPUT command & a couple of other things as promised in the last issue.

I hope that after last month's issue things have progressed nicely and I'll have assumed that we've learnt the 'syntax' (there's that important word again) of the PRINT command and all the other features of it explained in the previous issue. Anyway we'd best be getting on with it. I don't want to drag on like I was forced to last time. For the newbies to the tutorial I suggest you get last month's issue and always get them from now on!

Okay, now for the good stuff. The thing which makes a programming language useful is the programmer's ability to accept the user's answer or response to any given condition. A facility must exist which allows the programmer to get user input; and you guessed it, in BASIC we have the INPUT command to do just this. Now if you still can't appreciate the power of the INPUT command let me give you a small example which may open your eyes to the usefulness of INPUT.

The following program PRINTs "Hello to my master" on the screen.

```
10 PRINT "HELLO TO MY MASTER"
20 END
```

And unfortunately that's all it does and can do for that matter. Up till now this was the only kind of stuff we were able to write. The program is very dry and has no ability to 'communicate' with the user.

But now we'll put an end to all that.

Type the following program and note carefully its effect.

```
NEW (Remember this from last month !)
10 PRINT "PLEASE TYPE IN YOUR NAME ";
20 INPUT A$
30 PRINT "THANKYOU FOR TYPING IN YOUR NAME ";A$
40 END
```

You should have noticed that after the computer displayed the line after the PRINT, it put a question mark after it. This is called a prompt. After you typed in your name and hit return (indicating to the computer that you'd finished entering your name), the computer should have displayed 'THANK YOU FOR TYPING IN YOUR NAME <Your name here>'. Now, what the computer did was, it prompted you for information by displaying the "?" and placing a blinking cursor on the screen. When you entered anything/your name the computer stored the data in the 'variable' A\$ (don't panic! we're getting onto this in a sec). You may ask how the computer knew in what to store your name. Well that's easy the 'variable' immediately following the INPUT statement is the one it will store it in. After the computer stored the data into 'A\$' this data may be used anytime by simply typing in A\$ into a relevant part of the program.

You may use a single INPUT to gather two pieces of data and this is very convenient sometimes. An example of this is as follows :

```
10 PRINT "PLEASE TYPE IN TWO NUMBERS TO BE MULTIPLIED ";
20 INPUT A,B
30 PRINT A;"MULTIPLIED BY ";B;"
```

```
EQUALS ";A*B
40 END
```

When using a multiple INPUT you must in response to the prompt type two pieces of data separated with a comma. But you can see how this can be useful.

In the program I put in a PRINT statement with a ; to display the message prior to the prompt. Note how the prompt stayed on the same line as the message? Try removing the ; from after the PRINT statement. The prompt should be displayed on the line after the message. You may however use something else to display the prompt with a message, without using PRINT. Try this:

```
NEW
10 INPUT "PLEASE TYPE IN YOUR NAME ";A$
20 PRINT "THANKYOU FOR TYPING IN YOUR NAME ";A$
30 END
```

You see we've reached the same end with a different road. You may use this form of INPUT when it is convenient. However it has a limitation, and that is that the results of previous INPUTs which have stored data in variables can't be displayed in this manner. This is because any variables on the INPUT line outside inverted commas are regarded as variables requiring 'filling' by the INPUT command. For example :

```
10 INPUT "TYPE YOUR NAME ";
20 INPUT "TYPE YOUR AGE ";
30 PRINT "YOUR NAME IS ";
40 END
```

C84

What I wanted to do was ask the person to type his/her name. Then I wanted to ask the person by referring to his/her name s/he typed earlier to type his/her age. This program wasn't successful because it put two variables on the second INPUT line. The problem is solved by knowing when and when not to use an INPUT statement to display a message. This is the right way :

```
10 INPUT "TYPE YOUR NAME"
";NAME$"
20 PRINT "PLEASE TYPE YOUR
AGE ";NAME$;" ";
30 INPUT AGES
40 END
```

Voila, it's solved and works!

As you can see INPUT is a powerful command but it must be used with precision. Here are some errors you may get using INPUT.

?REDO FROM START - This means you've entered the wrong type of data. That is you've typed letters when the input wanted numbers.

?EXTRA IGNORED - You've entered two bits of data when input only wanted one.

?ILLEGAL DIRECT - The INPUT statement can only be used from the program or deferred mode and not in the immediate mode.

That's it for INPUT. The information above aims at giving you an easy way of using INPUT, there is a version of INPUT which is typed INPUT#, and it is used with files stored on disk or tape. These complications won't be dealt with here. The reason is that by the time you've learnt the basic parts of the BASIC language these other things can easily be learned from a more detailed programming guide. Believe me, you'll get that good!

Now for something which constitutes the heart of the BASIC language or any other language for that matter. And that is 'variables'. Variables are names used to store values. Examples of some variables are A, B, Y, S1, NUMBER. Let's see

now how variables are used.

Firstly, there are two kinds of variables. They're called 'strings' for letter containing data, or 'numeric' for number data. The importance of variables is in their ability to be changed and set to values. They can store values which we use later on in programs. In the example programs above we set some variables and strings to values with the INPUT command, however, this isn't the only way. We can assign a value to a variable using the command LET. What this does is it 'lets' some variable equal some other thing. Variables can be set to results of calculations on other variables too.

The use of variables in a program will soon be one of the most important things to you, as only through them can you manipulate data given by the user.

Before trying some examples let me tell you what distinguishes a 'string' from an ordinary numerical variable. All string names are or must be terminated by a dollar sign '\$'. We saw this in the INPUT examples. Also string assignments must be done in inverted commas just like we used in the PRINT statements. An example of a string assignment would be, NAME\$= "OBEN CANDEMIR". Note the position of the inverted commas. Numeric data containing variables don't require the use of inverted commas and they don't have a special terminating character like the string's dollar sign. An example would be, NUMBER = 22.

Let's now experiment with assignment of variables. Type in the following program :

```
10 LET A=2 : LET B=3 : LET C=5 :
LET NUMBER=22
20 LET WORD$="COMMODORE 64"
: LET NAME$="ROGER RABBIT":
LET JOIN$=" AND "
30 PRINT
A;B;C;WORD$;NAME$
40 PRINT "A TIMES B EQUALS";A*B
50 LET D=A*B*C
60 PRINT "A*B*C WHICH WAS
ASSIGNED TO D EQUALS ";D
70 LET SENTENCE$=WORD$+
```

JOIN\$+NAME\$

```
80 PRINT "COMBINED STRINGS
READS: ";SENTENCE$
```

90 END

We should have learned a couple of things from this example. One is that we can let other variables equal the result of operations on other variables. Secondly, strings can be added! And lastly that typing in LET is a pain in the you know what! For that reason I'll let you gladly know that typing in LET isn't ever necessary. It is a drain on memory space and drain on your energy, so from now on avoid the use of LET. But remember its existence though. Another thing you may note is that spaces are treated exactly the same as other characters in strings. In the program, note how the spaces in "AND" were added to the others.

Now for a word of warning on the use of variables and strings. You must never use variable names which are reserved by the BASIC interpreter. These names include words like 'print' and 'input' or 'let'. You may not know all of the commands yet but you will in time. Just for now though I'd advise that you skim through these reserved keywords which are printed on the back inside cover of your user's manual. Avoid these words in naming your variables! You've been warned.

The next BASIC keyword we'll learn is the GOTO command. The function of GOTO is very straightforward. If you recall, we've been numbering our lines in programs. This is for two good reasons. One is to inform the computer we're in the program mode, as we saw in last month's issue. And the next is to provide reference points to which we can jump to. The GOTO command allows these jumps to be made. An example is a command like 'GOTO 10'. This simply jumps to & begins executing line number 10 and all lines after it. You must note that you can jump forwards or backwards.

The use of GOTO these days is considered poor programming practice as its

overuse leads to what is termed 'spaghetti programs'; where if a line is drawn to all the lines which are 'GOTOed' [sic] it resembles a plate of spaghetti. We won't worry about this until we learn about the GOSUB command. But sorry folks that's for next month. Let me just give you an example of GOTO in a program now :

```
10 PRINT "COMMODORE  
COMPUTER USERS RULE !"  
20 GOTO 10
```

This is a fairly simple and popular novice program, but it nevertheless illustrates the use of GOTO. Generally the disciplined use of GOTO when required can make your life easier as a programmer.

With all this under our belts we can start writing some useful programs. As an exercise, try writing a program which

will print the result of the multiplication of any two numbers entered by the user.

Before signing off for this month I'd also like to show you, how you can include comments in your programs. There comes a time in every programmer's life when s/he writes a program and leaves it for a while. The next time s/he looks at it, it looks like it was written by Fred Schmuck for all s/he cares. All the variables and their functions seem foreign.

Forgetting is a common fault of humans, so unless you aren't human you're going to require comments in your programs. And the way to include them is to use REM which is short for REMark. Anything after the REM is ignored by the computer. A warning follows this also; don't over REM your program. It just wastes valuable time like LET. Keep your comment as short as possible and better still keep two copies of your

good programs. One without REMs for your use and the second with them so future ease of editing and comprehension is guaranteed. An example of REM is :

```
10 REM *** THIS IS A BASIC REM  
STATEMENT  
20 PRINT "THE REM DID NOTHING  
!!!"  
30 END
```

Anyway I hope I've enlightened you a bit more on the BASIC programming language. Next month I hope to cover the IF...THEN conditional instruction, the GOSUB...RETURN subroutine structure and if we have room maybe show the use of the FOR...NEXT loop. But again the time has come to say 'That's all folks (at least for this month)."

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Part 3

Design your own Operating System

by Andrew Baines

In the final part of this three part series, Andrew Baines looks at methods of creating your own commands.

THREE ARE SEVERAL ways of implementing your own commands on the Commodore 64, some easy, and some exceedingly difficult. Having said that, you should not be deterred from creating the best system setup for you.

This month, we'll look at a few methods available to us, the methods that could be used, but, for a change, I won't present a program that you can plug into your system with your own modifications. This should not present a problem, as writing a program from the descriptions gives a greater understanding of what is going on.

The first method I have mentioned before, and is called CHRGET. This is a routine in low RAM that retrieves the next byte of BASIC text, be it within a program, or typed on the keyboard. Every time BASIC is started, through a warm or a cold start, CHRGET is copied from ROM into RAM at \$73. There is also another entry point available at \$79, which gets the previous byte.

Basically, CHRGET's operation is as follows - increment the pointer to point to the next byte, (INC \$7A), Load the Accumulator from the location pointed to by \$7A (\$7A and \$7B are straight after the LDA instruction). There are a few more tests it carries out, such as if the character loaded was a space, get the next character, and setting the carry flag, but we are not interested in this part.

To make our command wedge, we need to place a JMP at \$7C, after the Load the Accumulator, to our routine. As CHRGET retrieves one character at a time, our commands may only be one character long, unless we choose a single character as the first character in all our command words, eg. the '@' symbol

could be used if your commands access the disk drive, and a further distinguishing character/s could be used to distinguish between commands.

This is not only neater, but much faster in execution speed, as the computer only checks for one character, and not through all of the table of commands.

The JMP we put in CHRGET must point to somewhere, our routine. And our routine must be able to recognise certain callers of CHRGET. If CHRGET has been called by BASIC's direct mode processor routine, we don't want anything to do with it if our CHRGET routines are only for program mode.

This works both ways. You should always know which routine is calling. The DOS WEDGE on the Test/Demo disk uses CHRGET, and, if you can disassemble it, it is worthwhile looking at.

To see who the caller is, you can Pull from the stack, and Compare (make sure you Push the Accumulator back on the stack), or you can TSX and Compare using a LDA \$101,X, incrementing X once to get the next byte.

There is no right way. There are ways that save on memory and are difficult to read and interpret later on, and there are ways that are very speedy, and there are slow and cumbersome ways, but, as long as it works properly, it doesn't matter how it works, nor how fast it executes, just that it works.

If the caller was the program mode caller (\$A7E6), we have to restore A and X, and JMP to the ROM copy of CHRGET, at \$E3AB (this is the entry point you should use, it holds the instruction after the LDA in RAM). If the caller was the direct mode routine (\$A48C), we can see if the character re-

trieved matches ours.

The above two words 'direct' and 'program' can be interchanged, or used together in one particular section so that the commands can be accessed from both modes.

Now we have to check if the character retrieved is one of our characters or not. This is where the two character commands come in handy, as against the one character commands.

If we can check for just one character here, life for our computer, and therefore us, will be faster, and less complicated. If our character/s is not the character retrieved, JMP to the ROM copy of CHRGET to continue.

If our command has been found from a command table, double the index to the table (ASL), to point to the address table, which has the table of the commands' addresses in it. The correct one has to be put on the stack (high byte, low byte), and then you can just RTS to that routine. After that routine has been finished, the original caller of CHRGET will be returned to, as long as its return address is still on the stack.

The Command Vector

Commodore, in their wisdom, have designed one of the most open systems in the world for the Commodore 64. This system allows the user to modify any routine s/he wishes. BASIC uses several vectors to point to its routines.

Tokenisation, which recognises the keywords just input, and stores them as one byte tokens in the BASIC program. Command and Function vectors which decode the tokens, depending on what they do (Function vectors change nothing, and are followed by a number in

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brackets, commands change something). The list vector lists a program and the error vector points to a routine which prints an error on the screen, depending upon the value of the X register.

That may have been hard to take in, and it was hard enough to write, so we'll take the easy way out.

To really write a new routine to allow BASIC to recognise new keywords, we would have to write new routines for all of those vectors. Then the keyword we have made would act in the same manner as all the rest of BASIC's keywords. But writing routines for all of those things would not be economical when it comes to memory space.

There is, of course, a trade off. Because the new keywords must be stored as ASCII text, instead of one byte tokens, so 'COLOUR' would be stored as 'COLOUR' instead of a value that represented it.

Mostly this is not a problem, I am prepared to live with it. It certainly saves space in the part of memory you have put aside for machine code!

First of all, we must check where the word to be decoded is. If \$7A points to \$0200, the input buffer, then our word was typed in direct mode. If not, then we are not in direct mode, and therefore a program is being interpreted and RUN. If your commands should only be used in direct mode, JMP \$A57C to avoid program mode.

Check for the word using \$7A as a pointer to the word. Compare it with each letter of each word in the command table, if it's not there, JMP \$A57C.

Now use the index to the command table (after doubling it) as a pointer to the command table's address table. Push the address on to the stack, and RTS to the routine.

Interfacing with BASIC

BASIC has many routines that are useful to us. They evaluate expressions, and that may seem totally useless, but expressions are often found as parameters on the ends of statements, eg: OPEN15,8,15,"i0".

How do we retrieve the file, device and secondary address numbers? By using a routine at \$E200. It checks for a comma, and then returns a number between zero and 255 in the X register.

This would not work for the first fifteen, but the device and command numbers would be fine. To retrieve the file number, call \$AD9E to evaluate the expression, and then \$B7A1 to convert the expression in FAC1 to a number between 0 and 255 in the X register.

Now that we've knocked off the numbers, how do we get at the string? And remember that sometimes strings aren't always the same, sometimes they come in the form of 'A\$', and sometimes they come as "Hello". We have to be able to retrieve both.

First, we must remove the comma by a JSR to \$AEFD. Next, Evaluate the expression, JSR \$AD9E. As you can see, \$AD9E evaluates both numbers and strings.

We only want a string this time, so LDA \$0D. \$0D holds the status of the last expression. If non-zero, it was a string, if zero a number. Now we can JSR \$B6A6 to retrieve the length of the string, and put a pointer to it at \$22.

In other words, now all we have to do is TAX; X now holds the length of the string, LDY #0; to index into the string, LDA (\$22),Y; Get a character, Process the character, INY; DEX; BNE load another character.

If we wanted to convert a number to a string to PRINT it, do a JSR \$BDDDD and JSR \$B4A7 to convert FAC1 to a string. Stick these two just before the JSR \$B6A6 above, and the routine will do both.

Here is the routine to pick up a string or number and print it:

JSR \$AEFD ; Retrieve comma. This is not necessary if there is no comma. JSR \$AD9E ; Evaluate Expression. This routine will determine what the item to be printed is: a number or a string. \$0D has the status of the expression when this routine returns.

LDA \$0D ; Load the Accumulator with \$0D, ready to check if the expres-

sion is a string (\$FF) or numeric (\$00).

BNE STRING ; If the Accumulator (the last register operated on) is not zero, the expression is a string.

JSR \$BDDDD ; Convert FAC1 to ASCII string at \$0100 with the Accumulator (low) and Y register (high) pointing to \$100 upon exiting. JSR \$B487 ; Set up a string from the Accumulator and Y register. STRING JSR \$B6A6 ; Return string length from pointer to string from string descriptor pointed to by (\$64). A descriptor is a set of seven bytes that tell the computer where the string is, that it's a string, and the length of the string.

Now that the Accumulator holds the length of the string, and the location is in \$22, we can print the string using the following routine:

TAX ; Transfer the length to the X register

LDY #0 ; Load the Y register with zero.

LOOP LDA (\$22),Y ; Load the Accumulator with the start of the string + Y. JSR \$FFD2 ; Print a byte of the string.

INY ; Increment the Y register to point to the next byte of the string. DEX ; Decrement the X register, which holds the length of the string. BNE LOOP ; If the string still has bytes in it, Branch to LOOP. RTS ; Return to BASIC.

Now that we can get a string, a number from 0 - 255, we need to be able to retrieve a number larger than 255. The above routine will handle numbers as large as the '64 can handle, but that routine converts it to a string.

The routine we need is at \$B7EB, and converts a two byte number after a command to a two byte integer in \$14. Then we could move \$14 and \$15 up to \$62 and \$63 and call \$BC44 to convert the number to floating point format.

As you can see, BASIC holds many possibilities, and doing it one way is not the only way, nor is it the wrong way. If you would like to see more of this style of article, write to me care of the magazine.

A look at rounding in CBM BASIC

by Chris Searle

Commodore's 128 or 128D is a versatile machine - it can justifiably claim to be the king of 8 bit microcomputers. The relative success of the C and 128D may well be attributable in part to the much improved version of BASIC which Commodore Business Machines saw fit to incorporate in these machines.

With these advantages the C128 or 128D is a natural for the novice BASIC programmer wishing to try his or her hand at writing small business, technical, scientific or educational application programs. The need for utility and robustness in programs of this genre requires that the programmer write reliable and flexible routines for rounding numbers and displaying or printing calculated results in a systematic and comprehensible form.

Unfortunately, this is a subject that receives scant attention in Commodore's User Guides. It is invariably glossed over in books and magazine articles about learning to program in BASIC.

Well, how do we round and format numbers in CBM BASIC? Or for that matter any similar dialect of BASIC? Easy! some might say, but there are few pitfalls for the uninitiated to watch out for (I know... I fell into some of them).

In this article (and following articles to come) I will attempt to explain the various techniques. The 'maths' and 'string' approaches will be discussed in some detail as these have general application throughout the range of Commodore's 8 bit machines and the various versions of CBM BASIC implemented on them.

PRINT USING also gets a mention. AMIGA users may find the discussion interesting but the BASIC routines developed in the articles are not for them (sor-

ry folks! - your turn will come if the Editor agrees)

First of all we need to be aware of some limitations of CBM BASIC...

Limitations of CBM BASIC

CBM BASIC is Commodore's own dialect of Microsoft BASIC and is implemented in ROM in different versions in the C128, 128D, C64, Plus/4, C16 and Vic20 home micros. This dialect of BASIC was originally developed for the old Commodore PET machines in a version known as version 4.0.

Version 2.0, as available on the Vic20 and C64, is the simplest (and most basic!) form of CBM BASIC. The C16 and Plus/4 were packaged with version 3.5, a variation between version 2.0 and version 4.0. Version 7.0 available only on the C128 and 128D is the most powerful and sophisticated version of CBM BASIC released to date.

There is a price for this extra power on Commodore's 8 bit machines. CBM BASIC 7.0 is four times as long as the C64's version 2.0, so comparable BASIC programs run somewhat slower on the C128 and 128D than on the C64. The FAST command in BASIC 7.0 can sometimes be used in a program to offset this speed disadvantage, especially in heavy number crunching programs.

Commodore broke tradition with the AMIGA by supplying dialects of BASIC on disk developed by third party software houses. The first AMIGA 1000 units sold in the United States of America came with a BASIC written by Metacomco, a British software company. All later AMIGAS (including A1000's sold in Australia) have been packaged with a superior BASIC written by Microsoft for

the AMIGA known as AMIGA Basic.

This BASIC is almost identical to Macintosh BASIC and is essentially a super set of IBM's BASICA. AMIGA BASIC is now the de facto standard BASIC for the AMIGA and is a different kettle of fish altogether to CBM BASIC - in fact it offers a programming environment more akin to PASCAL (I still can't get used to no line numbers).

All versions of CBM BASIC are upwards compatible provided programs do not need to access memory locations particular to a machine (generally no peeks or pokes!). The advantage of this limited compatibility is that it IS possible to write general purpose number rounding and formatting routines which will run without alteration on any version of CBM BASIC (good news for C64 owners).

As with most other versions of BASIC running on 8 bit micros, CBM BASIC (in all its forms) is restricted to single precision numbers. This limits the range of floating point constants which can be stored and displayed in standard notation form (the way the ordinary person counts). When numbers get too large or small the BASIC interpreter automatically switches to scientific notation (the way scientists count).

With CBM BASIC, floating point constants can show up to 9 digits but are stored and manipulated in calculations with ten places of accuracy. Numbers outside the range -999999999 to 999999999 or numbers smaller than -.01 or .01 are printed in scientific notation.

For example, the number -.00045 is displayed as -4.5E-4. This is CBM BASIC's way of saying -4.5 times 10 to the negative 4th power, which is the same as -4.5 times .0001, or -.00045.

The letter E (which represents *10)

lets you know that the number is expressed in scientific notation. The value following E (the exponent) is the power of 10 by which the value preceding E (the mantissa) is to be multiplied to convert the number to standard notation. As seen in this example, 10E0-4ET is equivalent to .0001 (whereas 10E04ET is equivalent to 10000).

By comparison, AMIGA BASIC offers both single and double precision numbers. Single precision numbers are stored with 7 digits of precision (plus the exponent) and printed with 7 digits of accuracy. Double precision numbers are stored with up to 16 digits of precision and printed with up to 16 digits of precision.

In some respects this is a mixed blessing. Very few number crunching programs need 16 digits of precision but many would generate numbers with more than 7 digits. Most advanced hand calculators display numbers in simple form up to 8 digits but rarely offer more than 10.

If all this is as clear as mud, the Commodore User Manuals and Programmer's Reference Guides contain useful explanations. The point to note here however, is that the average microcomputer user (that's me!) would not be comfortable with a tabulation of numbers which included the odd number displayed in scientific notation.

This can really mess up an otherwise tidy display and make comparison of values a little tedious. If the program is to display or print out simple numbers (and not numbers in scientific notation) we must keep in mind that CBM BASIC is limited to outputting numbers in standard form with a maximum of nine or ten digits.

According to the Commodore 64 Programmers Reference Guide, numbers with more than nine digits will be rounded to the ninth digit. This seems to hold true for all numbers greater than 1 or less than -1 (eg. the number 123456789.5 will be displayed as 123456790).

However, you will find that numbers within the range 1 to -1 with more than

nine decimal places will be rounded and truncated to the tenth digit and displayed with ten digits of accuracy (eg. -.12345678955 will be printed as -.1234567896). It just goes to show that you can't take as gospel everything you read.

Those of us who do not have an absorbing interest in number theory (and I confess that includes me) tend to think of floating point number calculations in precise terms. The reality is that they are really only approximations, albeit accurate approximations. It all depends on how many decimal places of precision we take our calculations to.

As seen above, CBM BASIC will perform all floating point arithmetic calculations to ten places of accuracy and will display the result to nine or ten digits. Sometimes this can produce unexpected results. Try this command in direct mode -

```
PRINT 1.53 - 1.52
```

You didn't expect to see .0100000004 as the answer, did you?

Rounding this result to nine decimal places or less would of course give the expected answer .01. The result therefore, is at least accurate up to nine decimal places of precision.

However, because CBM BASIC couldn't extrapolate from the data given that an answer to two decimal places only was required, it dutifully output the answer to the limit of its display capabilities (pretty dumb eh!).

Approximations like this can generate strange results if the answer is to be manipulated with BASIC string functions to produce a formatted display before first truncating to the desired number of decimal places.

This can be shown by the following programming approach using the RIGHT\$ function which is often suggested in computer magazines as a short way of right justifying (aligning) numbers for display -

```
10 N=.01:REM number to be displayed
20 FL$="      ":REM string of 6 spaces
   for formatting number(format length)
30 N$=RIGHT$(FL$+STR$(N),6):REM convert number to string
   form; right justify and pad with spaces to
   6 characters
40 PRINT N$:REM print formatted
   number
```

If you run this program it will seem to work just fine. Now change line 10 to read 'N=1.53 - 1.52' (which should equate to .01) and run the program again. This time the answer displayed is '000004!'.

The reason is that CBM BASIC produced the approximation .0100000004 (not .01) as the result of the floating point calculation N=1.53-1.52. Line 30 converted this number to its string form (+.0100000004); added 6 spaces to the left of this string and then truncated the concatenated string to the first six spaces from the right of the string, thus generating the ridiculous answer 000004.

It is important to keep these sorts of limitations in mind when writing or using any BASIC rounding and formatting routine. Often unexpected results are displayed when these limitations are exceeded.

A good general purpose number rounding and formatting routine should include error and range traps to warn the operator that the number to be rounded is out of range for display in standard notation or exceeds the available output space.

Having said all that, we'll have a look at the different approaches available to a programmer in CBM BASIC (and similar dialects of BASIC) for rounding and displaying numbers.

Print Using

To start off, let's see what PRINT USING can do ...

For those of us fortunate enough to be programming in a BASIC language which includes a PRINT USING command, most of our number rounding and

formatting problems are over (alas, this excludes Vic20 and C64 owners). PRINT USING is tailor made for just this purpose.

If you aren't familiar with the use of the command now is the time to learn. Owners of a C128 or 128D will find a straight forward and reasonably easy to follow explanation of PRINT USING in the User Manual.

PRINT USING functions like PRINT and PRINT#. It is a command for outputting actual values or values held in variables to screen, printer, disk or other device. The big difference is that PRINT USING automatically rounds simple numbers to a preset number of decimal places and prints out the rounded value in a defined format. What's more, it works very quickly and correctly.

The format in which the value is printed is set by a string of format characters enclosed within quotation marks in the PRINT USING statement. Hash (number) characters (#) in the format string set the number of digits to be printed (the format length). The position of the decimal point in the format string determines the number of decimal places to be printed.

You can even include dollar signs, plus or minus signs, commas, and other symbols to make the format suitable for financial statements and other tabulations of numbers.

PRINT USING has the following syntax when printing values to the screen (as the default device) or when all output is redirected to another device by use of CMD (like PRINT) -

PRINT USING"format template";print values

eg. PRINT USING"##.##";1.9955
will printout - \$2.00

When opening a file to a device and directing output to the file or device, PRINT USING takes the following alternative form (like PRINT#) -

PRINT[#file number,] USING"format

template";print values eg. PRINT#1,
USING"##.##";1.9955

Enter and run the following short program to see PRINT USING at work -

```
10 data 47.65925,0.005,9.9955,0.0044,127
20 dv=3:REM dv=device number
30 open 1,dv
40 for i=1 to 5
50 read x
60 print#1, using"###.##";x;
70 print#1,spc(5);x
80 next
90 print#1:close 1
```

This is what we get on the screen. Notice the mess of values on the right displayed by PRINT#. Compare the nicely tabulated list of values on the left all converted to simple form, correctly rounded to two decimal places and with the decimal points in line. All done with the magic of PRINT USING! -

0.01	5e-03
10.00	9.9955
0.00	4.4e-03
127.00	127

If you wish to print out the results on printer, let dv=4 in line 20. To output the results to a sequential file on disk, let dv=8 in line 20 and change line 30 to read - open 1,dv,5,"0:p u demo,s,w"

However, the PRINT USING command does not provide a solution to all of our number rounding and formatting needs. It cannot be utilized for rounding and formatting a number in string form for temporary storage in a string array whilst the program is running (eg. where the program tabulates a result for later viewing or change by the operator).

Sometimes you may wish to convert a value entered at the keyboard to decimal form, to a set number of decimal places and assigned to a variable for later use (eg a compass bearing entered as degrees, minutes and seconds and converted on input to radians).

More importantly, PRINT USING is not implemented in CBM BASIC 2.0. For the majority of Commodore users (and I mean the legions of C64 owners out there) there is no alternative but to go back to 'basics' and write a subroutine which will simulate this command.

Maths solution

The technique for rounding numbers suggested on page 4.20 of the Commodore 128 System Guide is the common maths method utilizing the integer function (INT). The following example is given in the Guide and correctly rounds 2.876 to two decimal places, ie. 2.88

$$\text{INT}((2.876+0.005)*100)/100$$

This offering is at least an improvement on the C64 User Manual which leaves any budding BASIC programmer of the C64 completely in the dark as to how to round numbers (for that matter so does the AMIGA manual). There are however, some problems with this routine. E4 It doesn't always give the expected result!!

Try using this routine to round 1.995 to two decimal places (substitute 1.995 for 2.876 in the above example and enter the equation after a PRINT command in direct mode). As we would expect, the answer is 2.0. Now try -1.995. This time the routine returns a result of -1.99, not -2.

Because the INT function truncates negative numbers to the next lowest whole number (eg. INT(-1.6) returns -2), this routine will not correctly round numbers that would normally round to a whole integer. In the last example, adding .005 to -1.995 reduces the number to -1.990.

Multiplying -1.990 by 100 converts the number to -199.0 which remains unchanged by the INT function. Dividing the result by 100 moves the decimal place back two places to the left leaving -1.99 as the wrong answer.

Some dialects of Microsoft BASIC such as AMIGA BASIC have a FIX function which can be used instead of INT to overcome the problem. The dif-

ference between FIX and INT is that FIX does not return the next lower negative integer for a negative number ($\text{FIX}(n)$ is equivalent to $\text{INT}(\text{ABS}(n) * \text{SGN}(n))$). Replacing INT with FIX in the above routine, ie.-

```
FIX(-1.995+.005)*100)/100
```

correctly rounds the negative number -1.995 to -2.

To simplify matters even further, these advanced dialects of BASIC also offer a CLINT function. CINT returns the integer of a positive or negative number after rounding the fractional portion. Using the above example, the routine is simplified to the following form -

```
CINT(-1.995*100)/100
```

and also correctly rounds -1.995 to -2.

However CINT may only be used to return the rounded integer of a number within the range -32768 to +32767. Numbers outside this range will produce an 'overflow' error.

Unfortunately, Commodore has not seen fit to include the FIX or CINT functions in any version of CBM BASIC released to date (including version 7.0).

For Commodore users (or for that matter any user of a BASIC dialect which does not include the FIX or CINT functions) the problem in the way the INT function deals with negative numbers differently to positive numbers can be overcome by calling upon the assistance of the BASIC functions ABS (Absolute) and SGN (Sign).

Here is how these functions can be used with the INT rounding routine to round a positive or negative number to an assigned number of decimal places -

```
(INT((ABS(N)+(0.5/PP))*PP)/PP)*SGN(N)
```

In this routine, N is the number to be rounded and PP is a predetermined value which configures the routine to round N to a set number of decimal places (PP=1

for rounding to whole numbers; pp=10 for rounding to one decimal etc.).

The syntax of this line will be explained in more detail later on. For the moment, the following simple program demonstrates how the routine can be used to round positive or negative numbers to varying decimal places.

```
10 INPUT"How Many Decimal Places";DP
20 PP=10^DP:REM convert 0 to 1; 1 to
10; 2 to 100 etc. 30 INPUT"ENTER
NUMBER TO ROUND";N
40 NN=(INT((ABS(N)+(0.5/PP))*PP)/
PP)*SGN(N):REM round N and store in
NN 50 PRINT NN:REM display answer
```

If you like, type in and run the program. When prompted, enter 2 for the number of decimal places and -1.995 for the number to be rounded. You will see that the answer -2 is now correctly displayed. OK, try other numbers to verify that the routine works as expected in all cases.

If you have been lucky (perhaps I should say unlucky!) you will have discovered that the routine is not 100% reliable. Some number combinations are not correctly rounded!

This is not a fault in the algorithm (a bit of computer jargon, in this case meaning the maths procedure developed using the INT function to round numbers) but is a glitch in the way most general purpose microcomputer central processing units handle decimal numbers (at least that's what Commodore told me).

To demonstrate this, run the program again (if you have typed it in) to round 1.55 to one decimal place. The answer should be 1.6 but instead CBM BASIC returns 1.5. Try rounding 1.345 to two decimal places. Again the answer is 1.34, not 1.35 as expected. Also, rounding 1.015 to two decimal places returns 1.01, not 1.02

It would seem that the problem occurs with CBM BASIC when the number to be rounded is followed by a 5. However, strangely enough, if we execute a cal-

culation as part of the argument to the INT function, the resultant value may then round correctly. Run this line in immediate mode -

```
PRINT INT(((1.539-.524)+.005)*100)/
100
```

The answer is 1.02 right! But 1.015 is the result of subtracting .524 from 1.539. As we have seen, if we merely round the number 1.015 to two decimal places using the INT routine we get the incorrect answer 1.01 (the plot thickens!...)

At least Commodore users can take some heart in the fact that CBM BASIC is not the only dialect of BASIC which has this problem. When I tried out the routine on an ACT APRICOT running MSBASIC Version 5.28 I discovered that rounding 1.55 to one decimal place also produced the incorrect answer 1.5, yet all other number combinations I entered rounded correctly.

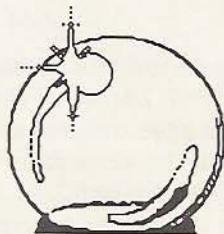
Similar results were obtained with AMIGA BASIC. Even CINT was found not to be totally reliable. For example, AMIGA BASIC incorrectly returns the number 1 and not 1.01 when rounding 1.005 to two decimal places with the routine CINT(1.005*100)/100

Don't be too disillusioned by these occasional discrepancies. In the event that your programming needs will be satisfied by a rounding routine that mostly works correctly (and apparently only causes problems when the number following the number to be rounded is a 5) then the approach demonstrated by the routines listed above offers a simple enough solution. ■



Adventurer's Realm

by Michael Spiteri



Welcome to another year of Adventurer's Realm, Australia's only adventure/wargame column dedicated to all Commodore computer owners. This month we have a review of a new Rainbird/Questor release, *Legend of the Sword*, a thrilling role-playing game similar to Beyond Zork.

The Official Realm Hint Sheets

The free hint sheets are becoming more popular by the minute. If you would like one or some, send a large stamped addressed envelope to the Realm.

The following hint sheets are currently available: *Zork 1,2,3*, *The Hobbit*, *Lord of the Rings*, *NeverEnding Story*, *Castle of Terror*, *Hitchhiker's Guide to the Galaxy*, *Borrowed Time*, *Faery Tale*, *ZZZZZZZ*, *Pirate Adventure*, *Adventureland*, *The Pawn*, *Dracula PtI*, and *Bards Tale I* (four pages - only ask for if desperate).

Lost in Nowhere Land? Write to the Realm

The Realm's major function is helping troubled adventurers, so if you're stuck in any adventure game, write to me and I'll try and help you out. If I can't help you, I'll print your problems in these pages so that some other adventurer might be able to help.

Always enclose a stamp - just in case I can reply to you (I have solutions to most disk adventures and also a few tape games).

Confused in World War II? Write to the Realm. Barry Bolitho is our resident wargame expert, so if you are having difficulties in any wargames, mark your envelope Wargame Section and I'll see that Barry gets your letter.

The address to write to for adventures and wargames is:

Adventurer's Realm
1/10 Rhoden Court,
Nth Dandenong, Vic 3175.

The Dungeon - Realm's Role Playing Section

by Kamikaze Andy

For all your role-playing queries, write to:

Role Playing Dept,
44 Hawkesbury Drive,
Willetton, WA 6155.

Dungeon News

Origin Systems are in the final stages of preparing *Ultima V: Warriors of Destiny* for the Amiga. This latest segment to the classic Ultima series will feature 32 towns, complex interaction and conversations, improved combat options, and a day-night cycle. The C64 version has already been shipped, with other new C64 games including *Space Rogue* and *Times of Lore*.

Neuromancer is a science fiction rpg based on the award winning novel of the same name, and Interplay promises its release soon, on both the C64 and the Amiga.

Review: Legend of the Sword

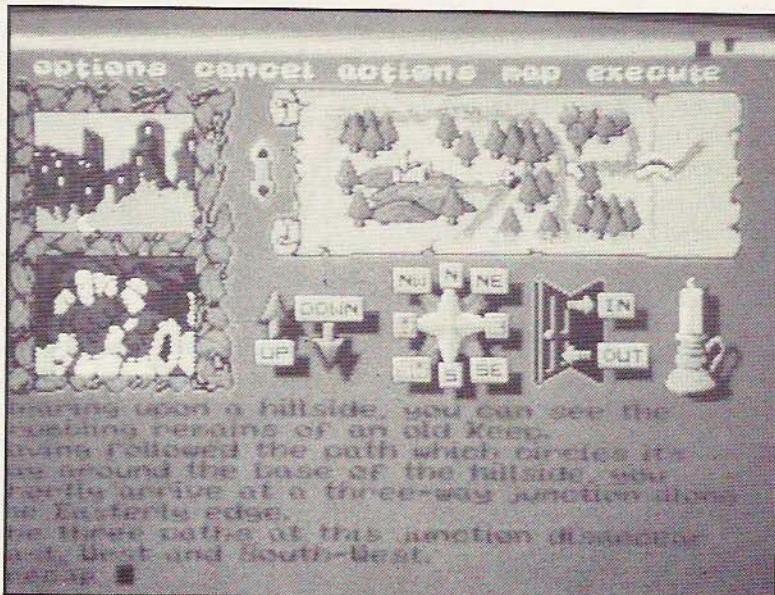
By Rainbird, review copy supplied by Questor.

Review by Kamikaze Andy

While looking over the press release for Sierra's *Police Quest II: The Vengeance*, I suddenly noticed a package on

my desk. Lo and behold, it is the latest adventure from the stables of Rainbird-Telecomsoft, *Legend of the Sword*. *Legend* is the product of a fairly new company, Silicon Software.

Why, the intelligent among you ask,



am I doing the review if *Legend* is an adventure? Well, *Legend of the Sword* is not only an adventure, but an adventure with role-playing elements in it.

Much like *Beyond Zork*, *Legend* is not a true RPG in the traditional sense, but incorporates some of the features found in most RPG's. In this case, your character and five others in your party journey through the mystical world of Anar in search of a magical sword and an enchanted shield. As with most RPG's, there is a bad guy you must vanquish at the end, and the name of this vile wizard is Suzar.

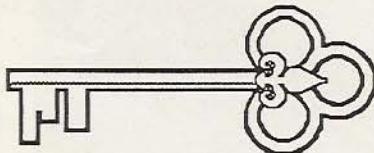
The actual elements of role playing found in *Legend* include the need to have food and drink (regularly!), the ability to battle monsters, and the ability to use the various weapons found within the land.

As you wander around Anar, an on-screen map displays the areas explored by your party. You'll meet and interact with hunters, living trees, trolls, and even a leprechaun.

The screen is divided into several parts, with the top half consisting of two separate graphic windows, the map, menu options, and a compass to indicate possible directions of travel. A candle is used to gauge your life force, and the lower it goes, the faster you die! The bottom half of the screen consists of a competent text-input system with a fairly efficient parser.

Legend of the Sword is a unique and highly innovative game, making good use of colourful graphics to heighten the atmosphere of the prose. The only criticism of the game is that it fails to make use of the Amiga's sound and music abilities, but otherwise *Legend* is good value for money.

Included with the game is a novella, a poster, and two playing guides. At present, only an Amiga version is available. Rating 8 out of 10.



★ Realm's Debate Centre ★

The current topic concerns the effect of adult software on society. Should we put a stop to the sudden flood of adult-oriented adventure games, or are we becoming a bit too old fashioned? Some adults give their view . . .

David McKinney writes:

"I have never played *Leather Goddesses* or *Leisure Suit Larry*, and I don't intend to. However, I personally don't find soft-porn offensive, and I think the kids of today all know what happens between a man and a woman (yes - even the 12-year-olds - you'd be amazed how enlightened a 12-year-old is!)."

"As for swearing, there's more of that from your average primary school kid's parents - he knows all the dirty words. Overall, I don't think these games adversely affect anyone, be he 12 or 112."

Joanne Green of Broadmeadows, Vic writes:

"I can't really see the reasoning behind buying a game simply because it is explicit. There are so many other games out in the system now of varied types that are surely better value for money and

provide excellent entertainment. I know that unless they were the top rating adventure games around, most of the 64 owners I know wouldn't waste their money."

Finally, Grant Heinrich writes....

"Don't you think the Realm debate is descending into the realms of stupidity? *Larry* and *Leather Goddesses* have so few naughty bits they couldn't even be banned by Fred Nile. I did not play *Larry* past the first few minutes, but used someone else's saves to see various bits - it's just a remedial game!"

MS: Actually, *Leisure Suit Larry* was banned in South America, and when the marketing manager of Sierra wrote a three part article in an American games magazine suggesting we welcome such games, he was flooded with personally insulting letters!!

There are certain X-rated programs floating around (pirate copies) which are so explicit, who knows what might happen if an 8-year-old ran it on his C64. Maybe a line should be drawn as to how explicit a game can become. The debate must go on . . .

Realm's Adventure Chit-Chat

Whoever says there is no such thing as a dedicated adventurer hasn't yet met Chris Sims, who with only nine days before her baby was due, wrote to me about working on a *Maniac Mansion* hint sheet. The child should be well and truly born by now, so from everyone in adventureland - congratulations to Chris and her husband (could another Zorker have entered the world?).

David McKinney realised that excavating in *The Helm* is nothing compared to trying to light a lamp . . . "How about this for a groan-inducing solution (from *The Helm*) - to obtain a source of light, you must pick up the bulb while holding an octopus. Why does this work? Because many hands make light work!!!"

Les Torok of Sandy Bay in Tassie

wants to know if anyone has come across a game called *The Book of the Dead*, and



if so, has any information on it.

Another clever contact for *Maniac Mansion* is Edna Dearest. If anyone needs help they can write to Edna at 120 Simkin Cres in Koorialg NSW 2650.

Manic adventurer and programmer Mario Moeller has submitted a quilled adventure game called *Stowaway* to Suite 64 Disk Magazine Number 13. Be sure to check it out. I'll try and review it shortly.

Guide to contributors

EVERY MONTH WE receive dozens of submissions from would be writers. For these we are most grateful. If you have considered writing for the *Australian Amiga and Commodore Review*, here's a few guidelines. The majority of contributions are accepted, however as we have a larger number to choose from these days, a few more stringent guidelines need to be met.

Style: Easy to read, entertaining and informative. We aim to be an enjoyable easy to read publication - with a smattering of technical articles for those so inclined. We are most interested in tutorials, "how to" type articles, and general hints and tips. Programs are also sought after for our disk magazines, Suite 64 and Amiga Live!

Format: Don't include any formatting such as printer controls, centred headings, print styles etc. Put a space af-

ter commas or full stops. Do not indent paragraphs. Numbers under 10 should be typed. We prefer contributions on disk - Commodore 64/128, Amiga, MS-DOS and even Macintosh. Don't double space. Just a straight ASCII text file is all we require. We also accept contributions via modem once you become a regular contributor. Baud rates of 300, 1200, 1200/75 and 2400 are supported.

What to include: A brief letter, if it's your first effort. Don't forget your phone number - this is the most important thing! And put your name at the top of the actual article, not just on the letter.

What you get: Fame and a little fortune. Writing is a lot of fun. You'll get payment of \$50 per 1000 words - paid about one or two months after publication and a free subscription to the magazine after your third article. We take

receipt of the article as permission to publish - you may not always be contacted before we use your article.

Where to send contributions: Post articles directly to *The Australian Commodore and Amiga Review*, 23 Bonnefin Rd, Hunters Hill. Or call (02) 817-0011 to arrange modem transfers. Don't send us your original - we cannot guarantee return, and it may become damaged in the post. Send 5 1/4 inch disks in an Australia Post cardboard Post Pak especially designed for carrying disks. Do *not* use padded post bags - these have a tendency to make the postman want to bend them in half. Amiga disks can just be sent normal mail.

That's it! For a more detailed version of the above, call our office and ask for the complete writers guide. ■

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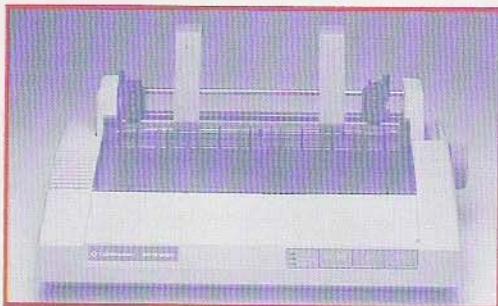
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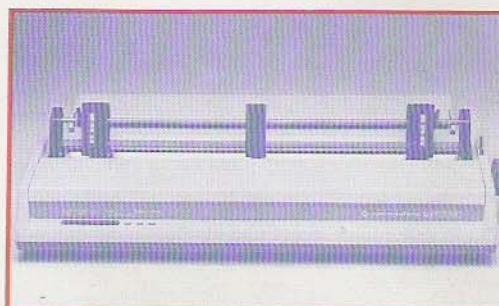
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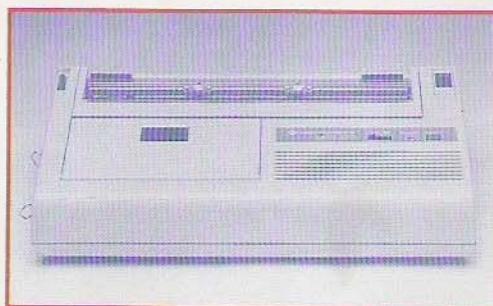
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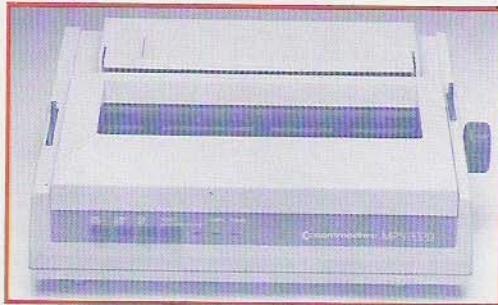
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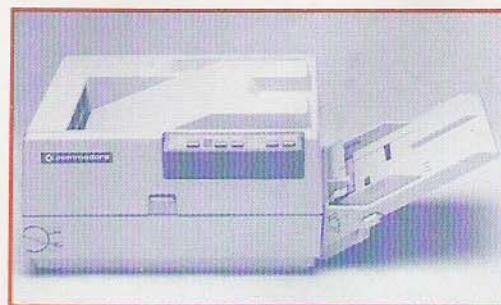
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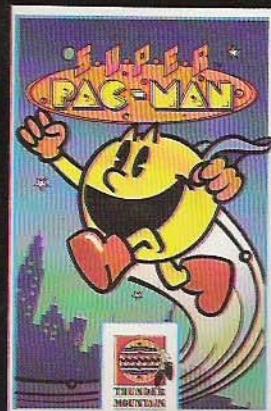


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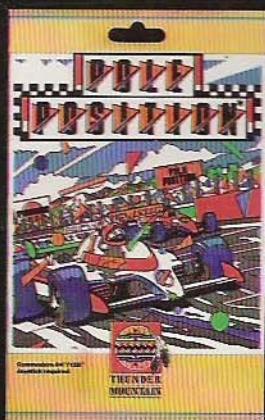
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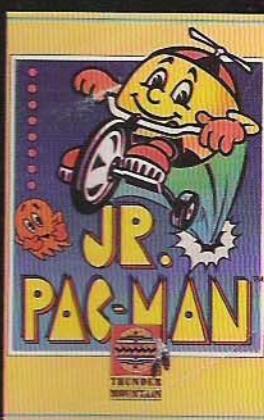
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